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February 1991

Agricultural Income and Finance

Situation and Outlook Report

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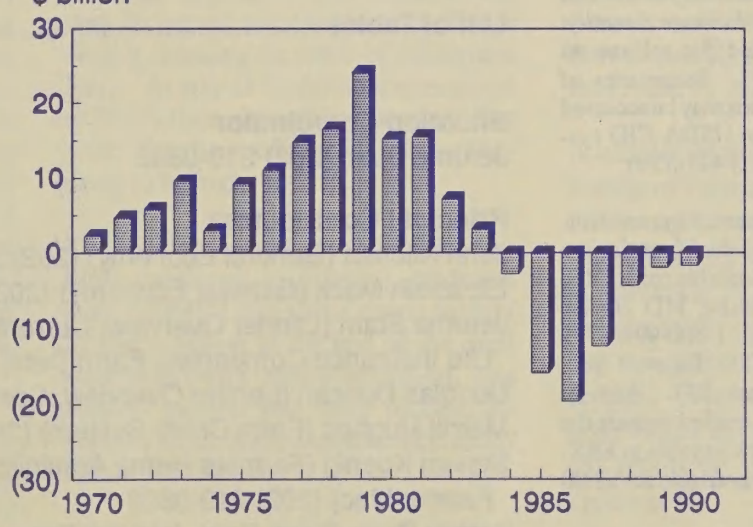
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Annual Change in Farm Debt

\$ billion



Annual Lender Issue

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Summary

Financial institutions serving agriculture continued to recover in 1990. Total farm debt at yearend 1990 (excluding household debt) is estimated at \$133.9 billion, a drop of 1.3 percent from a year earlier and a 31-percent decline from the 1983 peak of \$192.7 billion. The bulk of the 1990 decline in volume is attributable to Farmers Home Administration (FmHA) activity. Its shrinkage, combined with small decreases in the holdings of life insurance companies and of individuals and others, offset increases in loans held by the Farm Credit System (FCS) and commercial banks.

The delinquent portion of loan portfolios was steady for the most part at mid-1990. The FCS and life insurance companies experienced slight increases while banks remained at yearend 1989 levels and FmHA delinquency ratios were down. Loan chargeoffs were down for farm banks. Lenders in all categories continued to divest themselves of previously acquired property.

Farmers remain cautious about taking on new debt. However, stable land values and strong farm income may generate a slight increase in farm debt in the coming year. Lending capacity is more than adequate to handle the demand, particularly at commercial banks.

Agricultural interest rates declined in 1990, and many analysts are expecting further declines of 50 to 75 basis points in 1991. Interest rates on nonreal estate farm loans averaged 11.50 percent for commercial banks and 11.16 percent for the FCS in 1990. Average real estate loan rates in the same period averaged 11.71 percent at commercial banks and 10.56 percent for the FCS. All agricultural lenders indicate they would like to make more new loans, primarily to farmers with highly liquid assets.

Despite the much-publicized problems of large urban commercial banks, farm banks continued their recovery in 1990, achieving the highest rates of return on

assets and equity since 1983 (1.04 and 11.4 percent by midyear annualized data). Their capital ratios, at 10.2 percent of assets, indicate substantial ability to survive any short-term farm financial downturn. Loan-to-deposit ratios were down slightly at midyear to 55.3 percent and still below historical levels and the ratios desired by management. Commercial banks' nonreal estate delinquent farm loans held at 2.5 percent of portfolios as of June 30, while net chargeoffs were less than a tenth of a percent. The number of farm bank failures--18 in 1990--demonstrates a continued dwindling of problem farm banks. In fact, farm banks as a group are now among the healthiest of commercial banks.

Direct FmHA lending during fiscal 1990 was \$200 million below last fiscal year, dropping below \$1 billion for the first year since 1972. Obligations are expected to continue trending downward because of cuts imposed by the Omnibus Budget Reconciliation Act of 1990. Total outstanding direct loan volume dropped below \$20 billion for the first time in a decade. Guaranteed lending has not offset the decline in direct lending, but was up somewhat this past year. FmHA is continuing its effort to facilitate the shift from direct to guaranteed loans.

Through aggressive loan restructuring and increased foreclosures, FmHA is finally reducing its stock of delinquent loans. At mid-1990, delinquencies stood at \$6.7 billion, down \$2 billion from last year. Net chargeoffs by the agency continue to be high.

The financial condition of FCS institutions continued to improve gradually during 1990. Loan volume rose slightly to \$51.1 billion at the end of the third quarter as credit quality improved. Net interest income and other income increased while some expenses decreased relative to last year.

A number of institutional and regulatory changes have offset the underlying improvement of the FCS performance in 1990. Net income (the broadest measure of net revenue) declined due to lower negative provisions for loan losses, repurchase of outstanding FCS debt, and reductions in gains on the sale of foreclosure property. New accounting guidelines issued by the Farm Credit Administration (the FCS regulator) require several System banks to increase their non-accrual loan balances.

Some FCS institutions remain in a weak financial condition. While the last of the Jackson Federal Land Bank receivership assets and liabilities were disposed of during the year, there are now four other Farm Credit Banks (St. Paul, Louisville, Omaha, and Spokane) that have received assistance under the Farm Credit Act of 1987. In total, \$1.26 billion of the \$4-billion line of credit authorized by the act has been utilized.

The outlook for the Farmer Mac secondary market has improved. During the past year two firms have been certified by Farmer Mac as poolers of loans, and another has submitted an application. Both poolers are working toward offering securities backed by rural housing and farm real estate mortgages. The 1990 farm bill gives Farmer Mac authority to pool FmHA guaranteed loans (known as Farmer Mac II) and it has moved quickly to begin pooling guaranteed loans by summer.

A number of factors have hindered the startup of Farmer Mac, including regulatory capital requirements for banks, the difficulty of standardizing loans given the diversity of the agriculture sector, the challenge of structuring securities that are price competitive with other security investments, low loan-to-deposit ratios at commercial banks, and the return of a more upward-sloping yield curve.

Recession and Persian Gulf Dominate Economic Scene

The weak general economy is a mixed blessing for agriculture.

After nearly 8 years of expansion, the U.S. economy entered a recession in the second half of 1990. While the recession followed several years of relatively tight monetary policy, credit constraints and the negative effects of the Persian Gulf situation also contributed significantly to the weakness in the general economy. With timely resolution of the Gulf situation, most forecasters look for low oil prices and a relatively mild recession, with an economic rebound in mid-1991.

While significant costs are associated with recession, likely benefits include reduced inflation and lower interest rates. In addition, the current low exchange value of the dollar should promote U.S. exports and reduce the severity of the downturn. The combined low oil prices, inflation, interest rates, and dollar exchange value should help provide a relatively healthy macroeconomic environment for the agricultural sector.

Recession Evidence Accumulates

The preliminary estimate for real Gross National Product (GNP) growth in the fourth quarter of 1990 shows that the economy contracted at an annual rate of 2.1 percent during that period. Extreme weakness at the end of the year pulled real growth for 1990 down to 0.9 percent, from 2.5 percent in 1989 and 4.5 percent in 1988.

Weakness in the economy during the fourth quarter of 1990 was spread across various sectors. Interest- and credit-sensitive spending was particularly hard hit. Real consumption spending fell 3.1 percent at an annual rate, and investment dropped 18 percent at an annual rate. Labor markets also felt the impact of recession as civilian employment fell by 663,000 jobs between June and December. Over the same period, the civilian unemployment rate rose from 5.3

to 6.1 percent. A significant decline in manufacturing activity led to a 3-percent dropoff in industrial production and a fall in capacity utilization from 84 percent to 80 percent.

Interest Rates Behaved Differently

The interest rate behavior that typically precedes a recession was largely absent prior to the current downturn. Usually, the yield curve is inverted before recessions as a peaking economy and restrictive monetary policy drive short-term interest rates above long-term rates. While the yield curve flattened during 1988 when Federal Reserve policy was directed at fighting inflation, more recently the yield curve has been positively sloped as the Fed pushed short-term interest rates down.

Financial market restrictions in the current downturn appeared to occur more because of credit restrictions than because of high short-term interest rates. Banks and other lending institutions became more reluctant to make loans for several reasons, including weak real estate markets, higher loan defaults, increased regulation, and restrictive lending requirements. Banks have shifted a greater proportion of their assets into Government securities, making a lower share available to private borrowers.

Persian Gulf and Oil Prices are Key Factors

The price of oil was a key factor affecting inflation, interest rates, and the general economic outlook in the second half of 1990. Crude oil prices surged from about \$17 per barrel in July to more than \$35 per barrel at one point in November. Inflation, measured as the change in the Consumer Price Index (CPI) over the previous year, jumped from 4.8 percent in July to 6.3 percent in October. Yields on long-term Government bonds in-

creased from below 8.5 percent in July to nearly 8.9 percent in September.

The key role for oil prices will likely continue in 1991. The timely resolution of the Persian Gulf situation will likely generate low oil prices and reduced inflation and long-term interest rates. With an outlook for lower inflation and a continued weak economy in the first half of 1991, the Federal Reserve will likely allow short-term interest rates to fall further. The decline in interest rates should help promote a rebound in consumption and investment spending later in the year.

A Mild Recession?

While the risks of a deeper recession are real, most forecasters believe the recession will be mild by historical standards. The danger still exists for the economy to experience significant negative pressures from financial instability, high consumer and corporate debt levels, or uncertainty about oil prices and the Persian Gulf situation. But the consensus of a recent survey of private sector economists suggests that real GNP will fall by just over 1 percent from a peak in the late summer of 1990 to a trough in the middle of 1991. This expected decline compares favorably with an average decline of over 3 percent for the other three recessions of the 1970's and 1980's.

Implications for Agriculture

Slow income growth in the macroeconomy will lead to reduced demand for some agricultural products. However, if crude oil prices, inflation, and interest rates remain low, agricultural production expenses will be kept down. Also, with a weak economy, lower interest rates, and declining inflation pressures, the exchange value of the dollar will likely remain low, maintaining the competitiveness of U.S. agricultural exports.

The price of crude oil surged in August 1990, weakening the economy and fueling inflationary pressures. Increased uncertainty and higher inflationary expectations drove long-term interest rates up. By the end of the year, the Federal Reserve was pushing short-term interest rates down as falling production and rising unemployment revealed weakness in the economy.

Figure 1
West Texas Intermediate Crude Oil Price
\$ per barrel

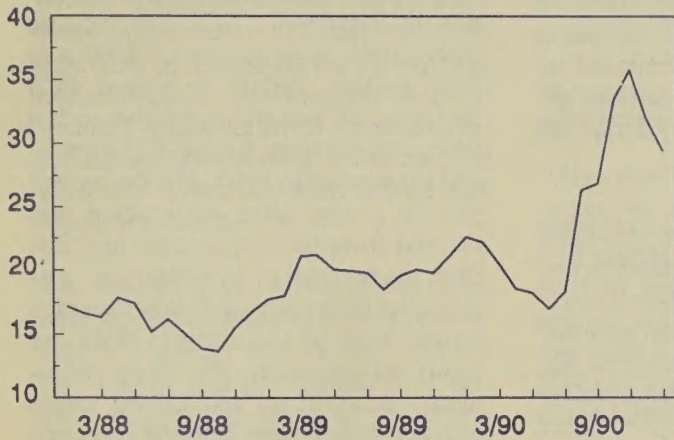


Figure 2
Inflation--Consumer Price Index
Percent change over previous year

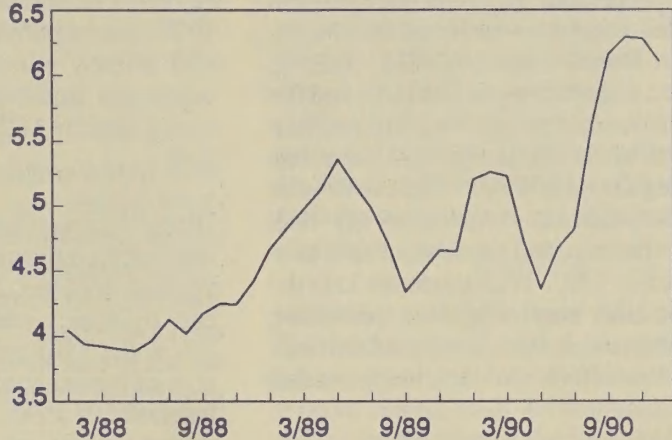


Figure 3
Long-Term Treasury Bond Yield
Percent

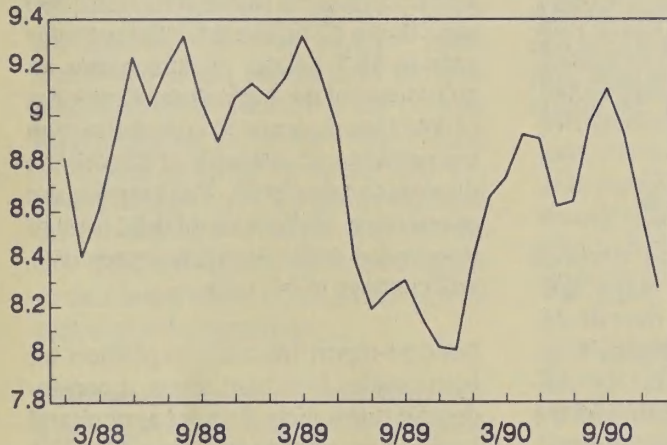


Figure 4
Treasury Bill Rate
Percent

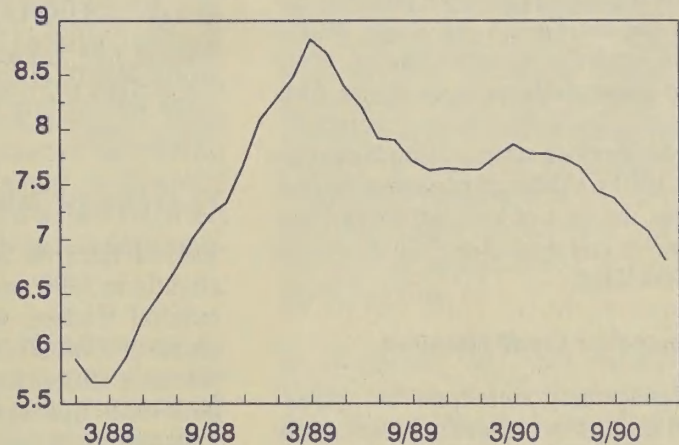


Figure 5
Industrial Production
Percent change over previous year

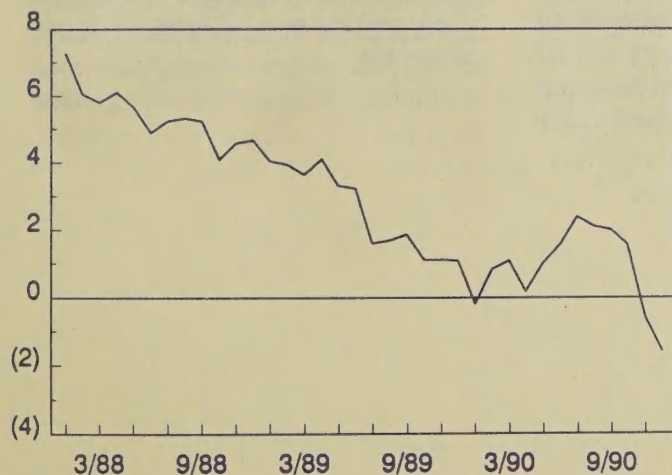
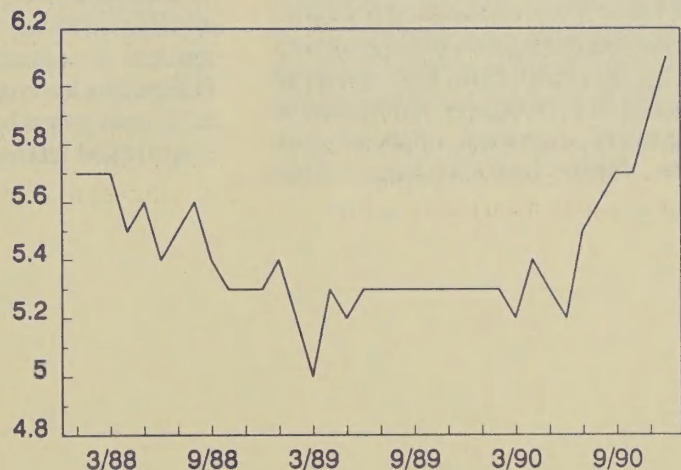


Figure 6
Civilian Unemployment Rate
Percent



Improvement Continues in 1990

Farm lenders' portfolios benefit from continued strength in farm income. Most farm income measures attained record levels in 1990, benefiting both farmers and lenders.

The financial condition of agricultural lenders continued to improve in 1990, and further gains are expected in 1991. Each of the four major institutional farm lender categories--commercial banks, Farm Credit System (FCS), Farmers Home Administration (FmHA), and life insurance companies--face unique challenges but are in stronger positions than during the mid-1980's. Most borrowers remain cautious in taking on new debt for expansion, and paydown of debt continued in 1990. With moderate loan demand and improving loan portfolios, agricultural lenders are focusing competitive efforts on increasing market share.

Lenders Strengthen Position

The position of agricultural lenders in 1990 reflected the overall improvement in the financial position of farmers. Except for the FmHA, all major institutional lender groups continue to experience lower delinquencies, fewer foreclosures, declining net loan chargeoffs, and far less loan restructuring than in the mid-1980's. Although improvement continues, the pace of working down delinquencies has slowed as financial stress has declined.

Demand for Credit Moderate

All lender categories report that agricultural credit demand was not particularly strong in 1990, while the capacity to lend remained high. Agricultural commercial banks continue to have ample lending capacity as indicated by low loan-to-deposit ratios. FCS long-term real estate loans outstanding decreased 2.7 percent during the year ending September 30, 1990, reflecting decreased demand for mortgage credit due to borrowers' improved financial positions. FmHA had undisbursed direct

operation loan funds of nearly \$200 million available at fiscal 1990 yearend. Total FmHA direct obligations fell below \$1 billion for the first time since 1972. Among life insurance companies still actively pursuing agricultural investments, total lending activity declined slightly (1.2 percent) during the year.

Despite increased lending activity of some insurance companies, outstanding loan volume declined 2.1 percent in 1990 and by year's end was 28.4 percent below the 1981 peak. Total loan volume of commercial banks and the FCS increased in 1990. Commercial banks posted volume gains of \$1.9 billion or 4.4 percent for calendar 1990, mostly from nonreal estate lending. The FCS reported loans outstanding of \$51.1 billion on September 30, 1990, an increase of 1 percent from a year earlier. FmHA lending continued its post-1985 decline with a drop of 21.6 percent in total farm loans outstanding in 1990, \$4 billion below 1989.

Farm Interest Rates Decline

Interest rates on farm loans declined slightly in 1990 among the major agricultural lenders, with an overall decrease of some 50-60 basis points. Considerable differences in local agricultural credit market competition and the wide variety of available loan products, however, resulted in wide variation in interest rates for farm loans. Spreads between different classes of real estate and nonreal estate loan types at commercial banks were as much as 3 percent in some districts. Intense competition resulted in commercial banks and the FCS pricing loans to preferred customers at 50 basis points below the banks' minimum stated interest rates.

Lender Health Improves

The financial health of the FCS and commercial agricultural banks continues to improve. FCS net income through the third quarter of 1990 was \$455 million. While in general, FCS performance was stable relative to last year, core earnings for the FCS continued to improve in 1990. For the second year in a row, more net income was derived from interest income and less from the reversal of loan reserves. Agricultural banks reported higher average returns to equity and assets in 1990, and lower net loan chargeoffs. These performance measures are approaching values common before farm financial problems emerged in the early 1980's.

FmHA continues to work aggressively through its backlog of delinquent direct loans. Delinquent payments at mid-1990 were down \$2 billion from the previous year to \$6.7 billion. Restructuring requirements of the Agricultural Credit Act of 1987 have generated cumulative loan writedowns and writeoffs of \$2.6 billion through October 1990. The long process of resolving this backlog of debt, most of it extended under emergency programs, will continue to be costly.

Lenders report intense competition for high-quality farm loan assets. Loan-to-deposit ratios inched up for agricultural banks in the year ending June 30, 1990, but surveys of bankers still indicate the ratios are below desired levels. Life insurance companies continue to exhibit considerable variation in loan policies toward agriculture; some are aggressively seeking new business while others are not.

Guarded Optimism Overall for 1991

Farm lenders will deal with a U.S. farm economy entering 1991 with reason to be cautiously optimistic. Farmer Mac inches forward.

Lenders overall will be dealing with a farm sector entering 1991 apparently stronger than at any time since the late 1970's. This is largely the result of cautious investment behavior, effective cost control, increased cash financing, and reduction in outstanding debt. Farmers' vulnerability to short-term income fluctuations is reduced because of gradually increasing asset values and lower debt loads.

The outlook is for limited growth in an otherwise healthy farm economy in 1991. While it appears that farmers will not make great financial strides in 1991, most will be able to avoid major setbacks. Factors now coming into play indicate that U.S. farmers are likely to see slightly lower net incomes in 1991. Reduced Government payments and higher production expenses will offset the rise in cash receipts, leading to lower net cash and net farm income. Farm borrowing is not expected to increase significantly as a result of the drop in income. During the last half of the 1980's, farm debt declined by almost \$60 billion. Farmers and their lenders learned lessons from the financial stress of the mid-1980's and are reluctant to respond to the current and forecast situation with renewed debt expansion.

All major institutional farm lenders face a number of evolving issues. Because of their differing institutional setting, farm lenders will take different approaches to the challenges of 1991. The issues that will shape future lending practices include: (1) profitability of farm borrowers; (2) degree of success of the Farmer Mac secondary mortgage loan process; (3) improving the financial reporting standards of the agricultural

lending industry; (4) costs and risks associated with environmental concerns; (5) changes in Government farm programs; (6) health of the general economy; and (7) U.S. farm export levels.

Farmer Mac Still Awaiting Operation

Three years after authorization by Congress, the Federal Agricultural Mortgage Corporation (Farmer Mac) continues to await formal operation of its secondary market for agricultural and rural housing mortgages. Operation delays can be attributed to a number of factors influencing the market's competitiveness.

One important factor has been the trend toward higher long-term interest rates relative to short-term rates in 1990. This has made long-term fixed rate mortgages (those likely to be securitized in the Farmer Mac market) less competitive relative to variable rate mortgages that are financed by short-term credit. Another factor has been the continued high degree of liquidity among agricultural banks and the strong competition for high-quality farm mortgages in general.

Developments with implications for Farmer Mac's eventual startup did occur in the past year. In June, the Office of the Comptroller of the Currency (OCC) issued guidelines governing commercial banks' participation in the new market. The guidelines are an important step because banks are a primary source of mortgages and have been sidelined by uncertainty over the OCC rules.

The OCC guidelines indicate that only the value of subordinated participation interests (likely to be held in the form of securities) in a loan pool will be counted against a bank's legal lending limit--not the full value of the loans sold. This should encourage participation, especially among smaller banks. Originators must retain loss liability on the first 10 percent of the mortgage through a participating interest, or hold an equivalent cash reserve.

OCC also ruled that loan sales into a Farmer Mac pool will be counted as loans sold with recourse, meaning that reserve capital must be maintained on the entire amount of the loan sold and not just the 10 percent retained. The ruling thus lowers the profit potential from Farmer Mac loan sales.

In September, Farmer Mac certified its first loan pooling facility. Manufactures Hanover Securities Corporation announced intentions to pool rural housing and agricultural mortgages. In January of this year, Goldman Sachs Mortgage Company was also certified as a pooler, and Farmer Mac was considering an application of a third unidentified firm.

In November, the Food, Agriculture, Conservation, and Trade Act of 1990 gave Farmer Mac the authority to operate a secondary market for FmHA guaranteed farm loans (known as Farmer Mac II). This new authority should boost Farmer Mac's visibility and give it needed experience. The new market is expected to be operational by summer. Authority to create a secondary market for FmHA guaranteed loans came from the Agricultural Credit Act of 1987.

Farm Credit Access Ample for 1991

Total farm debt should stabilize in 1991. Demand for quality farm loans is moderate.

Slightly lower net farm incomes in 1991, coupled with slower rates of farm asset growth, mean no large increases in farm borrowing are forecast for next year. U.S. farm asset values (excluding operator households) rose \$24 billion in 1990, an increase of about 3 percent. Total assets are expected to reach \$825 to \$835 billion in 1991, with the rate of growth slowing to less than 2 percent. These modest changes suggest a stabilizing farm economy. The real value of farm assets is projected to decline in 1990/91, as the general inflation rate is expected to exceed the growth in asset values.

Farm Debt Stabilizing

Total farm debt should increase slightly in 1991; the increase is expected to end a 7-year trend of debt retirement. A drop in FmHA debt should be more than offset by increased loan volumes of other farm lenders. Total loan volume for both the FCS and commercial banks increased during the last year, while life insurance companies and the FmHA continued to post declines. Commercial banks experienced a 4.4-percent increase in real estate lending in 1990, marking the ninth consecutive year of gains for this category. Some of this increase was due to more stringent loan collateral requirements implemented during the farm financial crisis of the mid-1980's.

Activity in the land market should create moderate demand for mortgage loans. U.S. farmland values increased 4 percent in 1989, rose an estimated 3 to 5 percent in 1990, and are expected to add another 2 to 4 percent in 1991. This will make 5 straight years of farmland

value increases, but the rate of increase now has fallen below the rate of inflation. During recent years, the overall strengthening of land values has lessened lenders' concern about the erosion of collateral values. In addition, there now may be a heightened interest in real estate as an investment because of its somewhat higher returns in relation to other asset classes. Farm real estate debt thus should increase slightly in 1991.

Demand for nonreal estate loans should remain moderately high in 1991. Farm capital expenditures fell nearly 60 percent during 1980-86 but increased during the 1987-90 span. The demand for unit sales of machinery is currently projected for 1991 to be similar to the 1990 level. The observable positive factors for 1991 are interest rates below or near 1990 yearend levels, increased cash marketings, and a farm sector debt/asset ratio remaining near 1989/90 levels. But these positive factors must be balanced against an outlook for declining net farm income, reduced planted acreage, and uncertainty regarding the impact of the 1990 farm bill. Nonreal estate debt is projected to increase by more than \$150 million in 1991 compared with a decrease of \$1,687 million in 1990.

Credit Access Is Ample

Creditworthy farmers should have ample access to operating loans in 1991, mostly from commercial banks and the FCS, the largest suppliers. Banks' low loan-to-deposit ratios provide liquidity to meet increased credit needs. The FCS is offering farm customers favorable credit arrangements in an effort to

regain market share. Life insurance companies vary in their lending policies, ranging from inactivity to aggressive lending; total life insurance company lending is expected to increase about 5 percent in 1991.

The availability of direct FmHA loans to family-sized farmers unable to obtain credit elsewhere should be down somewhat from fiscal 1990. The 1990 Budget Reconciliation Act sets Operating Loan authority at \$936 million and Farm Ownership authority at \$83 million; both are \$3 million higher than in 1990. However, the act also calls for \$482 million of this lending authority to be transferred from these programs to their corresponding guarantee programs. The amount transferred is to be reduced by a formula if the graduation of direct borrowers to guarantee programs did not reach a threshold value in the previous fiscal year.

FmHA's authority to guarantee loans made by commercial and cooperative lenders should be ample in fiscal 1991. Approximately \$1.3 billion in loan guarantees was issued in 1990, far less than the minimum \$3.2 billion in lending authority available for 1991. Demand for loan guarantees in 1991 is not expected to change greatly from 1990.

The outlook for 1991 indicates that competition for high-quality farm loans will continue to remain keen. The competition should serve to keep interest rates down. The overall mood is cautiously optimistic. Producers are prudent in taking on new debt and lenders are carefully scrutinizing the creditworthiness of borrowers.

Further Moderation of Agricultural Interest Rates Expected in 1991

Interest rates for real and nonreal estate farm loans declined in 1990 for all agricultural lenders after exhibiting an increase from 1988 to 1989.

Commercial Banks

Commercial bank nonreal estate interest rates declined from an average of 12.5 percent in 1989 to an average 11.5 percent in 1990, the largest decrease of any lender (appendix table 4). In comparison, average commercial bank real estate loan rates reported by the Federal Reserve declined by only 37 basis points, from 12.08 percent to 11.71 percent. Interest rates at small commercial banks, although lower than in 1989, were stable at about 12.3 percent for most of the year, but had increased slightly to 12.5 percent by December 1990. Farm interest rates at large commercial banks were more variable, ranging from a high of 11.4 percent in the second quarter to a low of 10.2 percent in the third quarter, reflecting a difference in their cost and composition of loanable funds compared with those of small agricultural banks.

Farm Credit System

FCS real estate loan rates declined from an average of 10.93 percent in 1989 to 10.56 percent in 1990, or 37 basis points (appendix table 5). A slightly larger decline of 57 basis points occurred in FCS nonreal estate loan rates, as the average on these loans fell from 11.73 percent in 1989 to 11.16 percent in 1990.

Life Insurance Companies

Interest rates on agricultural real estate loans made by life insurance companies are estimated to have fallen 28 basis points to an estimated 10.5 percent in 1990. Life insurance company interest rates are determined from a portfolio mix of private placement bonds, Government securities transactions, and mortgage-backed securities.

Farmers Home Administration

FmHA rates are not really comparable to rates for other lenders, since FmHA rates respond only indirectly to financial market forces. FmHA regular real estate rates declined by 39 basis points, while the rates on its real estate limited resource loans remained at 5 percent. The rate on regular FmHA nonreal estate loans declined from an average of 9.1 percent in 1989 to 8.81 percent in 1990. Nonreal estate limited resource loans maintained their 3-percent spread under the regular loan rate. The majority of FmHA loans are made through the limited resource loan programs.

Interest Rate Comparisons

Increased competition, volatile loanable funds cost, and more efficient interest rate risk management have generated two important variations of the fixed rate loan--the variable rate loan, and the adjustable rate mortgage (ARM). As a result, interest rates increasingly are more variable than is indicated by the rates presented in appendix tables 4 and 5. For example, FCS real estate loan rates in 1990 were 9.87 percent in some districts for ARM's indexed to 3-month Treasuries, while the average fixed rate loan was at 11.48 percent. The spread between FCS loan types varies among districts depending on: 1) differences in production and financial risk between agricultural regions, and 2) the type of internal pricing strategy used at the district bank.

Commercial banks offer similar products. Real estate loan rates at commercial banks vary by as much as 1.4 percent from an average high of 12.5 percent to an average low of 11.1 percent. Commercial bank loan interest rates can vary by several basis points between

banks depending on the degree of: 1) diversity in local economies; 2) competition in local credit markets; and 3) the cost and sources of loanable funds.

Outlook for Agricultural Interest Rates

Farm Credit bond spreads over comparable Treasury securities continued to diminish in 1990, helping to lower the cost of funds to the FCS. Furthermore, an investor flight to quality and liquidity in financial markets in early 1991 has made FCS bonds more attractive, further lowering the System's cost of funds. Through the introduction of new loan products like adjustable rate mortgages that are indexed to a specific money market instrument (e.g., 3-month Treasury bills), the FCS is able to pass on interest rate changes quickly to their borrowers.

Commercial banks are experiencing lower-than-desired loan-to-deposit ratios, evidence of a lack of high-quality credit risk which is resulting in an oversupply of loanable funds in the top end of the agricultural credit market.

Rising bond prices combined with a lower Federal funds rate and discount rate will push down farm loan interest rates for all agricultural lenders. In addition, a large number of agricultural lenders are actively seeking new farm loan accounts, indicating that competition will put further pressure on agricultural lenders to lower interest rates in line with the decline of 50 to 75 basis points many analysts anticipate in the general economy. Interest rate declines will be greatest for high-quality loans, with rates decreasing as credit risk increases.

Commercial Banks Hold Largest Share of Farm Loans

Total farm debt declines for seventh consecutive year. Farm loan delinquencies and chargeoffs continue to drop.

The distribution of the farm sector's \$133.9 billion debt outstanding, excluding operator households, as of December 31, 1990 is summarized in table 1. Commercial banks account for 34.6 percent of all farm loans, making them the leading agricultural lender, followed by the FCS with 27.4 percent. Individuals and others are estimated to hold 20.5 percent of the total.

Total farm debt outstanding at the end of 1990 represented a decline of \$58.8 billion, or 30.5 percent, from its peak in 1983 (appendix table 1). After both peaking in 1983, real estate debt by 1990 had declined 31.0 percent and nonreal estate debt had decreased 29.9 percent (appendix tables 2 and 3). The overall paydown in the farm loan portfolio appears to have been driven more by demand than supply. For a variety of reasons, farmers have decided to hold less debt. Large amounts of debt, coupled with relatively high interest rates, made debt servicing a costly item in the early 1980's. By 1987-90, interest rates were lower, farm income stronger, asset values stable, and debt down.

Commercial Banks Continue to Increase Market Share

Within the real estate debt portfolio, the value of outstanding real estate loans held by commercial banks has increased 73.1 percent since 1984. Some of the increase resulted from higher loan collateral requirements in the wake of the farm financial crisis rather than from new land loans. The collateral requirements shift loans into the real estate category. Loans held by the FCS were 41.0 percent below their 1983 peak by 1990. The dollar value of FmHA real estate loans peaked in 1985 and has declined 32.4 percent since. Despite these changes, the FCS remains the dominant real estate lender.

A number of important changes have occurred in the nonreal estate portfolios of the major farm lenders (appendix table 3). By the end of the 1988, FCS nonreal estate loans had declined 58.8 percent from their 1981 peak but increased 15.0 percent during 1988-90. At the end of 1987, commercial bank loans had decreased 26.7 percent from their top figure in 1984, before increasing 10.2 percent in the years 1985-90. FmHA loans decreased 43.2 percent during 1985-90.

Through the end of 1988, the FCS paydown totaled \$12.5 billion, and the 1984-87 paydown of commercial banks was \$10 billion. The FCS percentage decline was more dramatic because it came from a smaller initial base. In 1990, the FCS held 16.4 percent and commercial banks held 49.4 percent of total nonreal estate debt. The comparable figures in 1981 were 25.4 and 37.3 percent.

Delinquencies and Chargeoffs Continue Decline

Information on delinquent farm loans by lender during 1980-90 is presented in table 2. FmHA had the highest delinquency rates in both dollars and share of the portfolio. The total value of delinquent loans peaked for commercial banks in 1985 and for the FCS and life insurance companies in 1986. Delinquencies as a percentage of outstanding farm loans peaked in 1986 for all lenders except FmHA.

A key concern of farm lenders is the amount of loan losses they must absorb. Losses for commercial banks, FCS, and FmHA for 1982-90 are shown in table 3. During 1985-89, agricultural loan chargeoffs by these lenders totaled \$13.8 billion. The varying pattern of losses reflects institutional, accounting,

and regulatory differences. Commercial banks tend to focus on farm production loans, where problems surfaced more quickly than for the farm mortgages that dominate FCS's loan portfolio. Moreover, until 1985 the FCS tended to extend more loan forbearance than commercial banks.

Another factor explaining some of the differences in the timing of writeoffs between FCS and commercial banks may be the Federal bank regulators' March 1986 policy initiative to assist banks experiencing heavy losses due to adverse developments in the farm and energy sectors. One incentive for bankers to work with their cash-strapped borrowers was a change in the way renegotiated debt is required to be reported.

FmHA exercised liberal loan foreclosure forbearance into 1985, which resulted in low farm loan losses being reported by the agency. FmHA's policy of considerable forbearance continued in 1986 and 1987 because the agency's foreclosure activities were restricted by Congress and the courts. The outcome was low reported loan losses, but an accumulating amount of delinquent loans.

Beginning in fiscal 1987, FmHA began to resolve the delinquent loan volume that accumulated during the 1980's in a more vigorous manner. The Agricultural Credit Act of 1987 gave FmHA extensive guidelines to resolve its problems. FmHA has the authority to foreclose on delinquent loans after a complex set of restructuring rules, including partial forgiveness of principal and interest, fails to assist the borrowers.

Table 1--Distribution of farm debt, excluding operator households, by lender, December 31, 1990 1/

Lender	Type of debt		
	Real estate	Nonreal estate	Total
Percent of total			
Commercial banks	11.9	22.7	34.6
Farm Credit System	19.8	7.5	27.4
Farmers Home Administration	4.8	6.2	11.0
Life insurance companies	6.5	--	6.5
Individuals and others	11.0	9.5	20.5
Commodity Credit Corporation	2/	---	2/
Total	54.0	46.0	100.0

1/ Preliminary. Due to rounding some subcategories may not add to totals. 2/ \$7 million or 0.0052 percent of total debt. This includes CCC storage and drying facilities loans, but excludes CCC crop loans.

Table 2--Delinquent farm loans, by lender, 1981-90

Lender	Yearend 1/									Mid-year 1990 2/
	1981	1982	1983	1984	1985	1986	1987	1988	1989	
Billion dollars										
Commercial banks 3/ 4/	NA	0.9	1.5	2.1	2.6	2.2	1.4	1.0	0.7	0.7
Farm Credit System 5/	.4	.7	1.3	2.1	5.3	7.1	5.2	3.3	2.6	2.7
Life insurance companies 6/	.5	.8	1.0	1.2	1.7	1.8	1.3	.8	.4	.5
Farmers Home Administration 7/	5.8	9.5	11.0	12.1	11.9	12.0	11.8	12.5	11.1	9.2
Percentage of outstanding loans										
Commercial banks 3/ 4/	NA	2.5	3.8	5.2	7.3	7.0	4.8	3.3	2.3	2.4
Farm Credit System 5/	.5	1.1	1.8	3.3	8.7	14.4	9.9	6.5	5.0	5.2
Life insurance companies 6/	3.7	6.4	8.3	9.6	15.1	17.0	14.3	8.9	4.7	5.3
Farmers Home Administration 7/	24.1	37.9	43.9	45.9	41.5	42.9	45.8	49.8	47.8	46.2

NA= Not available. 1/ End of fiscal year (Sept. 30) for the Farmers Home Administration (FmHA) and end of the calendar year (Dec. 31) for the other lenders. 2/ June 30. 3/ Delinquencies were reported by institutions holding most of the farm loans in this lender group. Data shown are obtained by assuming that the remaining institutions in the group experienced the same delinquency rate. 4/ Farm nonreal estate loans past due 90 days or more or in nonaccrual status, from the reports of condition submitted by insured commercial banks. 5/ Data shown are nonaccrual loans. The Farm Credit System also reports "other high-risk loans," but not all such loans are delinquent. 6/ Loans with interest in arrears more than 90 days. 7/ Prior to 1988 a loan was delinquent when a payment was more than \$10 and 15 days past due. Beginning in 1988, a loan is delinquent if a payment is more than 30 days past due. Data shown are for September 30; thus, they avoid the yearend seasonal peak in very short-term delinquencies and so are more comparable with those shown for other lenders. The FmHA data reflect the total outstanding amount of the loans that are delinquent (as do the data shown for other lenders), rather than the smaller amount of delinquent payments that is often reported as FmHA "delinquencies."

Source: American Council of Life Insurance, Board of Governors of the Federal Reserve System, The Farm Credit Council, and Farmers Home Administration.

Table 3--Farm loan losses (net charge-offs), by lender, 1982-90

Year	Commercial banks 1/	Farm Credit System 2/	Farmers Home Administration 3/	Exhibit: Life insurance company foreclosures 4/
Million dollars (Percent of loans outstanding at end of period) 5/				
1982	NA	13	32 (0.1)	170 (1.3)
1983	NA	8	77 (0.3)	247 (1.9)
1984	900 (2.3)	428 (0.5)	128 (0.5)	289 (2.5)
1985	1,300 (3.3)	1,105 (1.6)	257 (0.9)	530 (4.8)
1986	1,195 (3.4)	1,321 (2.3)	434 (1.5)	827 (7.9)
1987	503 (1.6)	488 (0.9)	1,199 (4.3)	692 (7.5)
1988	128 (0.4) 7/	413 (0.8)	2,113 (8.4)	364 (4.0)
1989	91 (0.3)	(5) (0.0) 9/	3,297 (12.4)	204 (2.3)
1990 8/	0 (0.0)	19 (0.04)	3,199 (13.5)	56 (0.6)

NA= Not available. 1/ Calendar year data for nonreal estate loans. 2/ Calendar year data. 3/ Fiscal year data beginning October 1. Includes data on the insured (direct) and guaranteed farm loan programs. 4/ Loan charge-off data are not available for life insurance companies. 5/ Loan loss data rounded to nearest million dollars. 6/ Less than 0.05 percent. 7/ Does not include losses under the deferred loan program initiated in the fourth quarter of 1987. Beginning during that quarter small banks with more than 25 percent of their loans to agriculture in farm-dependent areas have been allowed (after regulatory approval) to amortize loan losses over a seven-year period. As of June 30, 1990, 45 banks reported more than \$34 million in agricultural loan loss deferrals. 8/ Commercial bank data through June 30, 1990 and Farm Credit System and life insurance company data through September 30, 1990. 9/ A gain of less than 0.01 percent.

Source: American Council of Life Insurance, Board of Governors of the Federal Reserve System, The Farm Credit Council, and Farmers Home Administration.

Performance of Agricultural Banks Strong

Farm banks are healthy, liquid, and in position to continue their current leadership among farm lenders.

Agricultural banks are among the strongest institutions in the banking system. Annualized mid-1990 results indicate a rate of return on assets (ROA) of 1 percent, well above their low of 0.4 percent in 1986 and the current industry average of 0.7 percent.

ROA reflects improved loan quality in farm bank portfolios, where only 2 percent of loans were in nonperforming status at midyear (down from 4.7 percent in 1986). This was substantially better than the industrywide rate of 3.2 percent nonperforming loans. In both ROA and loan quality, agricultural banks outperformed the small nonagricultural banks to which they are often compared.

Loan-to-deposit ratios at agricultural banks declined slightly from midyear 1989 after increasing for 2 consecutive years. The decline of 0.8 percent left farm bank loan-to-deposit ratios at 55.3 percent at mid-1990 and with ample capacity to extend additional credit. However, the decline in the performance of the economy and problems in the banking industry make increased lending unlikely.

What Is an Agricultural Bank?

The two most common definitions of an agricultural bank are those of the Board of Governors of the Federal Reserve System (FRB) and the Federal Deposit Insurance Corporation (FDIC). The FRB classifies banks as agricultural if their ratio of farm loans to total loans exceeds the unweighted average of the ratio at all commercial banks on a given date (16.10 percent on June 30, 1990). The FDIC criterion is a 25-percent ratio of agricultural loans to total loans. As of June 30, 1990, there were 4,193 agricultural banks under the FRB definition and 3,204 by the FDIC ratio (table 4).

Agricultural bank numbers peak at mid-year due to seasonality in farm loan demand and then decline as loans are paid down. From June 1989 to June 1990, the number of FRB farm banks dropped by 126 (2.9 percent) while the FDIC figure dropped 32 (1 percent). (Unless otherwise indicated, the FRB agricultural bank definition is employed below.)

Although the number of farm specialty banks declined, commercial bank lending to agriculture grew. Commercial bank farm loans increased by 4.3 percent in the year ending June 30, 1990. This included increases of 5.1 percent in nonreal estate debt and 3.9 percent in real estate secured debt. The agricultural bank share of total commercial bank farm debt remained virtually constant in that period at nearly 56 percent.

Farm Loan Quality Is High

Overall, commercial bank farm production loan quality was good. Only 2.5 percent of such loans at all banks (\$791 million) were in nonperforming status (table 5), a 22-percent decline from the previous year. An additional 1.3 percent (\$412 million) was reported as renegotiated and performing, down 16 percent from a year earlier. Agricultural banks reported 2.2 percent of farm production loans nonperforming, with another 1.9 percent renegotiated and performing.

Net chargeoffs of farm nonreal estate loans for all banks declined 65 percent from the previous year and represented 0.1 percent of such loans at farm banks. Agricultural bank loan loss provisions were also down, reflecting management's expectation of lower loss rates in the future (table 6).

The Competitive Equality Banking Act of 1987 (CEBA) included a provision

allowing small agricultural banks (using the 25-percent definition, and with less than \$100 million in assets) in farm-dependent areas to spread farm loan losses over 7 years instead of taking them the year they are incurred. Through mid-1990, 45 banks reported outstanding deferrals of \$34.2 million in such losses. This was a decline of 17 percent from a year earlier.

Profitability Excellent, Capital Strong

Agricultural bank profits were excellent, with ROA at 1 percent (a good long-run level) and return on equity (ROE) at 11.4 percent, both annualized from midyear figures. The ROE measure, a 0.6-percent increase over a year earlier, was achieved in spite of a softening economy and the widely reported problems of the banking industry. Agricultural banks outperformed their small nonagricultural counterparts, which achieved ROA of 0.8 percent and ROE of 10.1 percent. Both bank types remained highly capitalized. Farm banks had capital-to-asset ratios of 10.2 percent on average while the small nonfarm banks stood at 9.1 percent, both well above industry averages.

Loan-to-deposit ratios for both bank groups were nearly the same as a year earlier. Agricultural bank loan-to-deposit ratios are still lower than desired by bank management. The ratio of loans to assets sheds some additional light on relative bank liquidity. The average agricultural bank loan-to-asset ratio stood at 48.8 percent as of June 30, 1990 with the ratio for small nonagricultural banks at 59.8 percent. Thus, agricultural banks retained substantially more liquidity, allowing them to respond to any foreseeable increase in credit demand.

Numbers of farm banks are down regardless of how they are defined. Having dealt effectively with bad loans, they are now quite healthy, with the capacity to service creditworthy borrowers.

Table 4--Number of agricultural banks by definition, 1982-90 1/

Item	1982	1983	1984	1985	1986	1987	1988	1989	1990 2/
---Number of Banks---									
Commercial banks	14,418	14,427	14,410	14,283	14,008	13,505	12,961	12,635	12,425
Agricultural banks (FRB)	5,156	5,115	4,987	4,847	4,704	4,480	4,337	4,180	4,193
FRB farm loan ratio (Percent)	17.74	17.56	16.97	16.14	15.78	15.60	15.73	15.84	16.10
Agricultural banks (FDIC)	4,112	4,065	3,922	3,682	3,516	3,335	3,236	3,172	3,204

1/ Includes domestically chartered, FDIC-insured commercial banks with deposits, assets, and loans. 2/ 1990 figures are for June 30, all others are December 31.

Source: Calculated from the Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System (FRB).

Table 5--Nonperforming loans as a percentage of total loans by type of bank, 1983-90 1/

Type of bank	June 30, 1983	June 30, 1984	June 30, 1985	June 30, 1986	June 30, 1987	June 30, 1988	June 30, 1989	June 30, 1990
---Percent---								
Agricultural								
Total nonperforming 2/	2.7	3.2	4.1	4.7	3.8	2.7	2.3	2.0
Past due 90 days 3/	1.6	1.6	1.6	1.6	1.2	.8	.7	.6
Nonaccrual	1.0	1.6	2.5	3.1	2.6	1.9	1.5	1.3
Nonagricultural 4/								
Total nonperforming 2/	2.5	2.1	2.3	2.6	2.5	2.2	2.1	2.0
Past due 90 days 3/	1.3	1.0	.9	1.0	.8	.7	.7	.6
Nonaccrual	1.2	1.1	1.4	1.6	1.7	1.5	1.4	1.4

1/ Data are weighted by bank asset size. 2/ Columns may not equal totals due to rounding. 3/ Still accruing interest. 4/ Nonagricultural banks with less than \$500 million in assets which were not agricultural by the FRB definition.

Sources: Johnson, James, Emanuel Melichar, and C. Edward Harshbarger, "Financial Condition of the Farm Sector and Financial Institutions," paper presented at the Symposium on Financial Stress in Agriculture Issues and Implications, Kansas City, MO., Nov. 24, 1986, and calculated from the Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System.

Table 6--Selected bank performance measures by type of bank, 1983-90 1/

Performance measure	1983	1984	1985	1986	1987	1988	1989	1990 Estimated
Percent								
Rate of return on equity capital								
Agricultural banks	11.0	9.0	6.0	5.1	7.6	10.0	10.8	11.4 2/
Nonag small banks	12.0	12.0	11.0	8.3	8.1	8.7	10.1	10.1 2/
Rate of return on total assets								
Agricultural banks	1.0	.7	.5	.4	.7	.9	1.0	1.0 2/
Nonag small banks	.9	.8	.8	.6	.6	.7	.8	.8 2/
Provisions for loan losses as a percent of total loans								
Agricultural banks	1.1	1.5	2.4	2.4	1.4	.8	.7	.5
Nonag small banks	.8	.8	1.0	1.3	1.0	.9	.8	.8
Capital as a percent of assets								
Agricultural banks	9.4	9.5	9.6	9.5	9.8	10.0	10.1	10.2 3/
Nonag small banks	8.4	8.5	8.5	8.4	8.8	8.8	9.0	9.1 3/

1/ Rate of return on equity is net income after taxes as a percent of the average of total equity capital at the beginning and end of the year. Rate of return on total assets is net income after taxes as a percentage of total assets as of December 31. 2/ 1990 numbers are first-half data at annual rates. 3/ First half data. The post-1987 figures are based on an updated definition of total capital. The changes are minor and do not, for the most part, affect small banks' capital levels.

Source: Melichar, Emanuel, "Agricultural Banking Experience, 1985," Board of Governors of the Federal Reserve System, March 1986, revised appendix data as of November 1986, updated in September 1988 by Nicholas Walraven, FRB Staff, and calculated from the Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System.

Current Trouble Spots: Big Banks and Real Estate

Agricultural bank failures are down again as are numbers of weak banks. Farm banks have avoided real estate loan problems of large nonagricultural institutions.

The improvement in farm bank loan quality was reflected in the continued decline in the number of failed and weak farm banks. Only 18 agricultural banks failed in 1990 compared to the peak of 75 in 1987. An additional 23 agricultural banks were listed as weak at mid-year 1990, an 85-percent decline from the peak in 1986.

Nonagricultural bank failures also fell substantially in 1990, to 141 from 184. The decline in the number of weak nonagricultural banks during the year ending June 1990 indicates that the failure rate should decline further in 1991 (figure 7). Only 124 nonagricultural banks were classified as weak, down from 241 in 1987. However, among those weak banks remaining are some large banks which are the main source of regulator concern.

Weak Banks and Regulator Forbearance

Banks with primary capital-to-asset ratios below 5.5 percent as well as those with adequate capital-to-asset ratios but substantial impending losses could apply for the forbearance program (under CEBA) through their principal federal regulator through December 31, 1989 (table 7). The program, which expires January 1, 1995, gives qualifying banks a minimum of 5 years to rebuild their capital. At the closing date for admittance, 316 banks were in the program. A total of 582 banks had applied, 174 had been rejected, and 87 had withdrawn their applications.

In 1986, the FDIC instituted two policies designed to limit credit market interruptions associated with bank insolvencies. The first, "open bank assistance," helps banks nearing insolvency to avoid closure by exchanging a por-

tion of their nonperforming loans for cash. The FDIC usually requires a change in the bank's management, a wipeout of current stockholder equity, and infusion of additional private capital. In 1990, one bank received open bank assistance, the same number as in 1989 but down from 21 in 1988.

The second FDIC policy, "whole bank" closure, mitigates the problems and costs associated with bank insolvencies. The "whole bank" method provides funds to an acquiring bank to cover the failed bank's loan portfolio, including the bad loans. In 1990, 39 bank failures were resolved in this way, down from 41 in 1989 and 56 in 1988. Six agricultural banks were among the 1990 "whole bank" resolutions.

Real Estate Problems

Much of the current regulator concern over commercial bank health stems from real estate loan problems and their impact on large bank portfolios. As of June 30, 1990, six of the banks classified as weak had over \$500 million in total assets. The potential for failure among banks of this size has raised doubts about the solvency of the FDIC fund.

Overall, real estate loans comprise about 38 percent of bank loans and total \$802 billion, of which only \$32 billion are held by agricultural banks (table 8). This \$32 billion represents about 41 percent of agricultural bank lending. Small nonagricultural banks have about 52 percent of their loans in real estate for a total of \$209 billion as a group. The remaining \$561 billion is held by 606 large nonagricultural banks, with real estate making up over 34 percent of their portfolios. Whereas nonperforming real estate loans of agricultural and

small nonagricultural banks were at roughly the same low proportions as their other loans, for the large banks the proportions were high relative to other loan types--more than double those of the agricultural and other small banks.

Agricultural banks had restructured 1.31 percent of nonperforming nonresidential real estate loans as of June 30, 1990, but large banks had restructured only 0.19 percent. Real estate loan net chargeoffs at agricultural banks amounted to 0.1 percent during that time period while large bank net chargeoffs were 0.4 percent. Small banks are being the more aggressive in dealing with problem loans. This may be because large banks are reluctant to address problem loans at the risk of adverse impact on their low capital position. Another possible explanation is that small banks may feel their hands are forced by Federal regulators' unequal closure treatment of small banks and the large banks that are often considered "too big to fail."

Rumblings Among Regulators

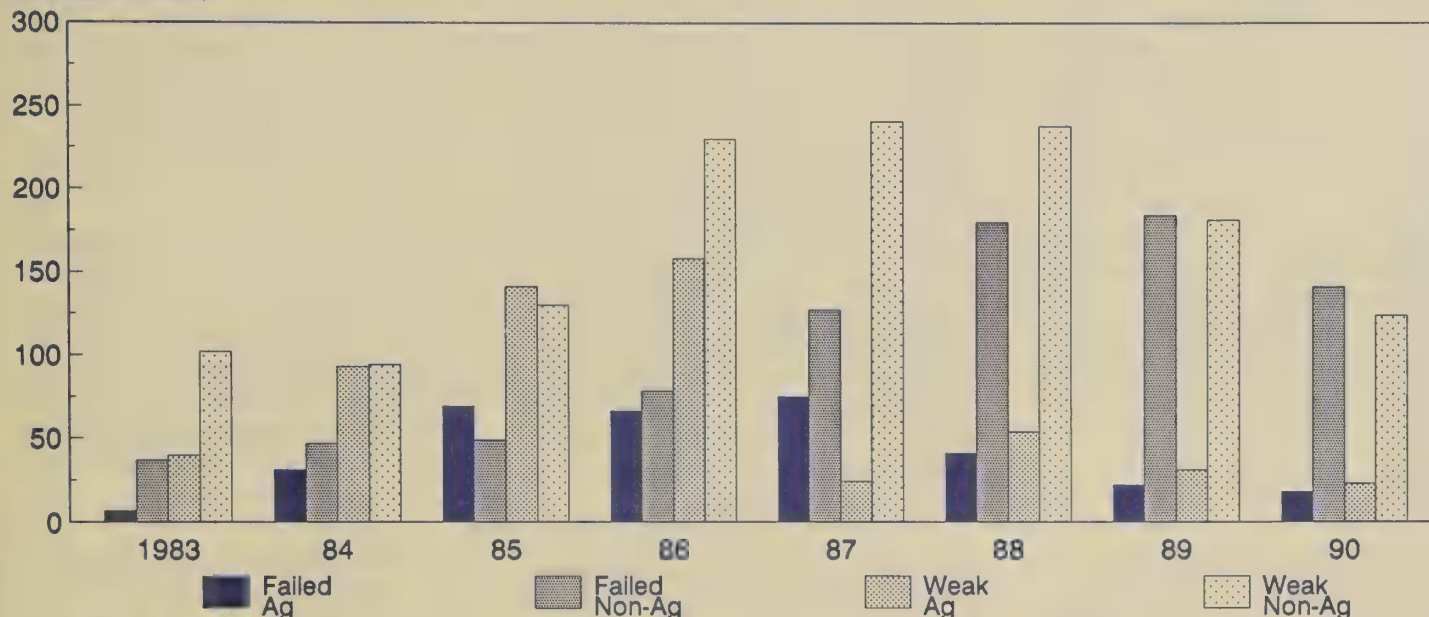
Clearly, the problem bank focus has shifted to large nonfarm banks and their potential for threatening the solvency of the deposit insurance fund. A number of legislative and regulatory proposals are being floated, including recent initiatives from the Treasury Department. Potential actions to be considered are mergers among Federal regulators, recapitalization of the deposit insurance fund, deposit insurance reform, and changes in bank investment powers. All of these proposals would impact agricultural banks, which are small and for the most part independent (only eight agricultural banks had assets greater than \$300 million as of June 30, 1990).

Numbers of failed and weak farm banks are the lowest in nearly a decade. The capital forbearance program that addressed mid-1980's bank problems is winding down. Real estate problem loans will not hit agricultural banks but have regulators worried over big banks.

Figure 7

Weak and Failed Commercial Banks

Number of banks



Figures for 1990 banks are June 30, all others December 31.

Table 7--Status of bank regulator Capital Forbearance Program, December 31, 1990 1/

Bank regulator 2/	Applicants	Denied	Withdrawn	Pending	Approved	Active	Banks terminated		
							Failure	Graduated	Other 3/
							---Number---		
FDIC	352	105	36	4	207	112	50	25	17
OCC	220	65	52	0	103	35	38	21	9
FRB	10	4	1	0	6	4	1	1	0

1/ Application deadline for program, program runs through January 1, 1995. 2/ Federal Deposit Insurance Corporation (FDIC), Office of the Comptroller of the Currency (OCC), Federal Reserve Board (FRB). 3/ Other includes mergers and/or charter conversions.

Source: Federal Deposit Insurance Corporation, Office of Supervision and Application. Internal Memorandum, Deputy Comptroller, Office of Special Supervision. Board of Governors Federal Reserve System, Office of Banking Supervision and Regulation.

Table 8--Commercial bank real estate lending by type of bank, June 30, 1990

Bank group	Commercial banks	RE loans to total loans 1/	Nonperf. RE to total RE 2/	Total nonperf. to total loans	Nonperf. RE to total nonperf.	Weak banks 3/
	No.	Percent	Percent	Percent	Percent	No.
All	12,426	38.4	3.45	3.16	41.9	147
Agricultural	4,193	40.8	1.94	1.96	40.4	23
Small nonagricultural	7,627	52.2	1.86	2.01	48.2	118
Urban	5,562	37.4	3.71	3.22	41.7	95
Rural	6,684	47.7	1.64	1.77	44.1	52
Large nonagricultural	606	34.4	4.12	3.50	41.0	6

1/ RE = real estate. 2/ Nonperf. = nonperforming; 90 days past due and still accruing interest plus non accrual. 3/ Weak banks are banks with total nonperforming loans in excess of total capital.

Source: Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System.

Small Banks Dominate Agricultural Lending

Agricultural specialty banks still hold over half of farm loans, but large nonagricultural banks play an important rule.

Agricultural commercial banks hold 56.2 percent of all commercial bank agricultural loans as of June 30, 1990, a slight increase from a year earlier. These relatively small specialty banks retained high levels of liquidity and thus were well positioned to extend additional credit. They do, however, face significant competition from other commercial banks (table 9). Larger banks often hold higher levels of farm loans, but these represent a small proportion of their total loan portfolios. Nearly one-quarter of all commercial bank farm debt is held by the largest class of non-agricultural banks.

Small Banks Hold Lion's Share of Farm Loans

Some bank specialists argue that \$100 million in assets is the minimum bank size for long-run efficiency and that smaller banks are therefore at risk. The high failure rate among small agricultural banks in the 1980's, the pace of financial innovation, and the impacts of deregulation have combined to heighten concern over the long-run viability of agricultural and other small banks in the new, more competitive environment. On June 30, 1990, there were 9,440 banks (3,971 agricultural) with under \$100 million in assets.

Banks with assets of less than \$100 million hold 55.7 percent of all commercial bank farm debt. Among banks under \$100 million, the average dollar amount of farm loans held per bank is quite small, reflecting the local lending commitment of these banks. Their advantage in knowledge of individual borrower credit risk enables them to serve the small farmer/borrower.

Small Banks Have Higher Capital, Lower Loan Ratios

Bank capital reduces risk by cushioning losses and supports liquidity by maintaining borrower confidence, allowing the bank continued access to financial markets. At mid-1990, the smallest banks' equity capital ratio was nearly double that of the largest banks (table 10). Further, the smallest banks held a much greater proportion (92 percent) of capital in the form of owners' equity than did the largest banks (71 percent). Large banks were taking advantage of greater leverage to increase returns on equity--a relatively risky strategy--while small banks were taking a more conservative lending approach.

The difference in bank management approaches is reflected in loan-to-deposit and loan-to-asset ratios. The loan-to-deposit ratio has traditionally been used to measure liquidity. However, changes in financial markets have altered the ratio's interpretation. Some types of loans can now be readily sold, reducing the need to hold securities for liquidity purposes and allowing expansion of loan portfolios. Expanded markets for nondeposit funds allow banks to alter management strategies through the purchase of funds, especially short-term. Management, adapting to these changes, might expect higher loan-to-deposit and loan-to-asset ratios as well as lower deposit-to-liability ratios. The practicality of these management strategies is clearly related to bank size, with much wider use among large banks (table 10).

Mixed Indications of Size, Profit Relationship

Profitability is normally measured by ROA and ROE. The smallest banks

were significantly less profitable than all others except the largest banks as measured by ROA (table 11). ROE showed the same general trend, with peak performance in the \$100-300 million class. However, the impact of leverage vaulted the large banks nearly to the top in returns to equity capital.

The smallest bank group, those with \$25 million or less in assets, included 1,955 agricultural banks and 3,515 nonagricultural banks and was the least profitable group. The agricultural banks provided about 13 percent of commercial bank loans to agriculture, making their continued profitability a serious concern to farmer/borrowers.

When the smallest class was separated into agricultural and nonagricultural banks, a different and startling profitability picture emerged. The agricultural banks achieved annualized ROA of 0.96 percent and ROE of 9.68 percent--near the top for all banks. However, the smallest nonagricultural banks earned ROA of 0.03 percent and ROE of 0.25 percent at annualized midyear rates. These low profit figures are partially explained by the existence of newly chartered banks, which generally take at least 3 years to attain profitability assuming they survive at all. But if these rates of return persist for established small banks, they will lead to the demise of many.

Over the longer run, small banks, which include most agricultural banks, face significant management challenges as a result of deregulation and innovation in financial markets. The smallest banks will watch with concern as major regulatory and legislative changes being suggested seem to be crafted with the prospects of large banks in mind.

While small banks still lead farm lending, some storm clouds are appearing on the horizon. Some structural changes taking place in the industry are generating uncertainty among small banks.

Table 9--Agricultural lending of agricultural and nonagricultural banks by bank size, June 30, 1990 1/

Total assets	Agricultural banks					Nonagricultural banks				
	Banks	Total ag loans	Avg. ag loans	Ag 2/ lending share	Ag loans to total loans	Banks	Total ag loans	Avg. ag loans	Ag 2/ lending share	Ag loans to total loans
Mil. dol.	No.	---Mil. dol.---		---Percent---		No.	---Mil. dol.---		---Percent---	
under 25	1,955	6,302	3.2	12.9	45.3	1,560	508	.3	1.0	3.7
26 - 50	1,299	8,808	6.8	18.0	39.7	1,892	1,385	.7	2.8	3.5
51 - 100	717	7,664	10.7	15.6	33.4	2,017	2,653	1.3	5.4	3.2
101 - 300	214	4,197	19.6	8.6	27.0	1,809	3,988	2.2	8.1	2.2
301 - 500	4	136	34.0	.3	19.8	349	1,217	3.5	2.5	1.4
over 500	4	391	97.8	.8	18.9	606	11,779	19.4	23.9	0.7
Total	4,193	27,498	6.6	56.2	35.6	8,233	21,530	2.6	43.7	1.1

1/ Figures are weighted within size class. 2/ This represents the percentage of total commercial bank agricultural loans held by this size group of banks.

Source: Calculated from the Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System.

Table 10--Selected commercial bank solvency and liquidity ratios by bank size, June 30, 1990 1/

Total assets	Comm. banks	Capital to asset 2/	Equity to asset	Loan to deposit	Loan to asset	Deposit to liability
Million dollars	No.	---Percent---				
Under 26	3,515	11.1	10.2	57.5	50.7	98.1
26 - 50	3,191	10.0	9.1	60.0	53.4	97.9
51 - 100	2,734	9.6	8.7	61.8	54.9	97.3
101 - 300	2,023	8.9	8.0	68.0	59.8	95.6
301 - 500	353	8.5	7.4	73.5	63.0	92.6
over 500	610	8.1	5.8	87.1	63.9	77.9
Total/Avg.	12,426	8.4	6.4	81.1	62.4	82.3

1/ Weighted average within size class. 2/ Total capital includes equity capital.

Source: Calculated from the Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System.

Table 11--Selected commercial bank profitability and efficiency measures by bank size, June 30, 1990 1/

Total assets	Return on assets 2/	Return on equity 3/	Asset utilization 4/	Noninterest income to total income	Interest expense to total expense	Interest expense to interest income
Mil. dol.				---Percent---		
under 26	0.53	5.17	10.05	7.81	58.76	56.26
26 - 50	0.80	8.79	10.08	7.38	62.19	57.24
51 - 100	0.87	9.98	10.19	8.34	62.53	57.60
101 - 300	0.92	11.52	10.26	9.15	62.25	57.30
301 - 500	0.85	11.46	10.39	9.98	62.80	58.16
over 500	0.63	10.96	11.44	16.07	65.61	66.73
Average	0.69	10.72	11.14	14.42	64.84	64.49

1/ All ratios are on an annualized basis and weighted within class size. 2/ Rate of return on assets is net income after taxes as a percentage of total assets. 3/ Rate of return on equity is net income after taxes as a percentage of total equity. 4/ Asset utilization is gross income as a percentage of total assets.

Source: Calculated from the Report of Condition and Report of Income files, Board of Governors of the Federal Reserve System.

Farm Credit System Size Stabilizing, but Changes Continue

The financial condition of Farm Credit System institutions continues to improve overall despite facing weak loan demand and a call for a buildup in capital.

Despite concern voiced by some FCS officials that System institutions need to regain a larger share of the farm loan market, gross loan volume has remained virtually stable for the past 2 years. FCS loan volume as of December 31, 1990 was \$51.172 billion, up \$583 million from 1989. More significant changes in loan volume occurred between the different types of loans offered by the System. Volume continued to shift from long-term to short- and intermediate-term lending during 1990. The volume of long-term real estate loans outstanding decreased \$1.03 billion to \$29.44 billion during the 12-month period ending September 30, 1990. This represents a decline of slightly under 3.5 percent. Short- and intermediate-term loans increased \$737 million during the same period to \$10.98 billion, a rise of roughly 7 percent. At the same time, the Banks for Cooperatives increased loan volume 8.27 percent to \$10.69 billion (table 12).

The FCS continued to reduce the allowance for loan losses, funds set aside to cover losses associated with loan chargeoffs and related expenses. Funds from the allowance were moved back into net income. But the rate of transfer also slowed. As of September 30, 1990, the account stood at \$1.52 billion, down from \$1.64 billion a year earlier.

Most major lending groups have recently come under increased pressure from regulators and legislators to build up or strengthen their capital base. The FCS is no exception. As mandated by the 1987 Farm Credit Act, permanent capital requirements are being phased in. By 1993, a minimum capitalization of 7 percent of risk-adjusted assets will be required. At the end of the third quarter of 1990, all FCB's except in Spokane were in compliance with the interim capital requirements. Financial

stress at the Spokane district has been well documented since the Spokane FCB received financial assistance under the 1987 Farm Credit Act, at the end of the second quarter of 1990.

The composition of System capital has also continued to change due to structural changes mandated by the 1987 Farm Credit Act. Among the mandates was that all borrower stock issued before October 6, 1988 was to be repaid at face value, while borrower stock issued after that time would not be guaranteed. Protected borrower stock decreased in 1990, with retirement of the stock as the associated loans were repaid, and because some districts have capitalization bylaws that require the exchange of protected borrower equity for at-risk equities. Other capitalization bylaws were recently passed that lower the required level of investment by System associations in the banks. Capital stock and surplus for the System as a whole stood at \$4.6 billion at the end of 1990.

System capitalization was not the only sign of improvement in the financial condition and performance of the FCS during 1990. Net interest income gained strength, primarily as a result of a decrease in the average cost of funds for the System (table 13). During the mid-1980's, one of the major sources of financial stress for the System was payment on long-term noncallable bonds that had been issued as interest rates peaked in the early 1980's. Much of the high-cost debt issued in the early 1980's has now been retired.

Due to maturation and the help of interest-free funds available through the legislated assistance program, the average annualized interest rate on total funds was 85 basis points lower during the first three quarters of 1990 than during the same time period in 1989. Since the

average interest rate charged borrowers decreased only 52 basis points, the spread between the interest rate charged on earning assets and the financing cost of those assets increased 33 basis points from the first three quarters of 1989 to the first three quarters of 1990. As of September 30, 1990, the spread stood at 1.96 percent.

The FCS loan spread was also increased by the continued decline in the volume of nonaccrual loans, which in turn has been fueled by the rising income of the System's farmer/borrowers. Even though fewer loans were moved from nonaccrual to accrual status in 1990 than in 1989, the volume of nonaccrual loans was substantially smaller in 1990.

At the end of the third quarter of 1990, the System was in an "asset sensitive" position with respect to funding. In other words, the interest rates charged on System loans could be changed more quickly than the cost of its funds, giving the System a great deal of flexibility. Moreover, the majority of the System's variable rate loans (which are the most prevalent type of loan) carry interest rates that are changed at the discretion of System management.

During the year there have been institutional and regulatory changes that offset the underlying improvement of the FCS performance. Net income (the broadest measure of cash-flow) declined during 1990 due to lower negative provisions for loan losses, repurchase of outstanding FCS debt, and reductions in gains on the sale of property acquired in foreclosure. In addition, new accounting guidelines issued by the Farm Credit Administration (the FCS regulator) required several System banks to increase their nonaccrual loan balances.

Farm Credit System lending is shifting away from long-term real estate credit, to short- and intermediate-term credit and loans to cooperatives. Despite a fall in net income, rising net interest income indicates an underlying resiliency in the FCS.

Table 12--Farm Credit System loan volume, by loan type, 1987-90

Loan type	Dec 31, 1987	Dec 31, 1988	Dec 31, 1989	Sept 30, 1990
--- Billion dollars ---				
Long-term real estate	34.35	32.18	30.24	29.44
Short and intermediate term	9.93	9.26	10.02	10.98
Loans to cooperatives	8.22	9.99	10.44	10.69
Total 1/	52.50	51.43	50.70	51.11

1/ Items may not sum to total due to rounding.

Source: Federal Farm Credit Banks Funding Corporation, Farm Credit System Annual Information Statement 1988, and Farm Credit System Quarterly Information Statement, Third Quarter 1990.

Table 13--Farm Credit System income statement, 1987-90

Item	Dec 31, 1987	Dec 31, 1988	Dec 31, 1989	Dec 31, 1990
--- Billion dollars ---				
Total interest income	5.783	5.822	6.270	6.128
- Total interest expense	5.274	5.035	5.264	4.893
= Net interest income	.509	.787	1.006	1.235
- Provision for loan losses	-.196	-.681	-.285	-.041
- Other property loss (gain)	-.012	-.069	-.067	-.031
+ Other income	.097	.122	.148	.660
- Other expense	.808	.780	.811	1/
- Debt repurchase	0	.174	0	.039
Net income (loss)	-.017	.704	.695	.608

1/ Other income is net of other expense for December 31, 1990.

Source: Federal Farm Credit Banks Funding Corporation; Farm Credit System, Annual Information Statements, 1988, 1989; and News Release, February 27, 1991.

Farm Credit System District Performance Varies

Past assistance commitments are resolved and new ones met, amid discussion of the System's future role.

System-level statistics hide a wide variety of size and performance among individual districts. Total asset volumes range from \$6.8 billion in the St. Paul district to \$2 billion in Springfield. While the small- and medium-sized districts continued to increase volume, three of the four largest districts downsized during the 12-month period ending June 30, 1990.

The two most notable changes in the relative loan volumes of the Farm Credit Banks (FCB's) and their associations during the course of the 12-month period ending June 30, 1990 involved the St. Louis and Texas districts. The Texas district volume registered the largest decline of any district; total assets declined by roughly \$200 million to a volume of \$4.8 billion during the period. The decline changed the Texas district's relative volume ranking among FCS institutions from third to fourth largest. During the same period, asset volume in the St. Louis district increased significantly faster than other districts. St. Louis asset volume grew from \$3.9 to \$4.2 billion, moving it from seventh- to fifth-largest district.

Despite continued improvement overall in nonperforming loan volume, performance is markedly different among districts. As of midyear 1990, 4 of the 11 FCB's had ratios of performing loan volume to total loan volume registering 90 percent or above. Two districts, both of which have received assistance, had ratios below 80 percent. These districts are relatively large, and together were able to pull the System FCB average down to 85 percent. Moreover, statistics suggest that, on average, the nonperforming loans are relatively large. Calculating the ratio in number of loans, all but two banks had ratios of 90 percent or above in midyear 1990.

Four FCB's and one Federal Land Bank (FLB) have received assistance under the Farm Credit Act of 1987. Three of the FCB's--St. Paul, Louisville, and Omaha--have used a total of \$330 million in assistance provided for in the

Farm Credit Act of 1987. One additional bank was authorized for aid during 1990: the Spokane district Farm Credit Bank received \$89 million in assistance in September 1990.

The receivership process has now been completed for the Jackson FLB. The last of the assets and liabilities of the Jackson district was disposed of during 1990. Funding provided to the Jackson district amounted to \$388 million, slightly under the cost of \$395 to \$418 million that had been projected in early 1988. Ten FCB's (all except the Spokane district) and the three Banks for Cooperatives purchased most of the Jackson FLB assets. The Farm Credit Bank of Texas has taken over the servicing of the remaining loans of the Jackson district FLB.

In total, \$1.26 billion of the \$4 billion line of credit authorized by the act has been utilized (table 14). In addition to the assistance funds used directly by the FCB's mentioned above, \$417 million in assistance was also provided for recognition of losses sustained under the Capital Preservation Agreements (CPA) of 1986, and for other miscellaneous expenses. Interest payments on the CPA recognition are the sole responsibility of System FCB's, without the partial Treasury support provided for most other assistance to the System.

Most of the associations that became insolvent during the mid-1980's are still in the process of liquidation; only 4 of the 13 liquidation procedures that were started between the beginning of 1983 and second-quarter 1990 had been resolved by the end of 1990. Six Production Credit Associations (PCA's) in the Spokane district, and two PCA's in the Omaha district continued to work through the liquidation process. One Federal Land Bank Association (FLBA) in Jackson is also in the process of liquidation. Two additional Texas PCA's moved into receivership during 1989.

The Farm Credit Administration continues to provide new charters. Two new Federal Land Credit Association (FLCA) charters were issued during the first half of 1990--the same number as in 1989. Most of the change in the association numbers came from mergers. As of November 1990, a total of 290 associations were in operation, with the Texas district having the largest number (70), and the Columbia and St. Paul districts at a distant second place with 41 and 45, respectively, as of November 1990.

FCS Future Discussed by Regulators and Competitors

The Financial Institutions Reform, Recovery, and Enforcement Act of 1989 mandated the U.S. Department of the Treasury to review a wide variety of issues concerning financial institutions and recommend policy to reduce Federal participation and liability in credit markets. During 1990, the Treasury Department published the first of several reports aimed at carrying out this goal, recommending that all Government Sponsored Enterprises (GSE's), of which the FCS is one, be required to obtain the equivalent of a triple-A rating from at least two nationally recognized credit rating agencies.

The FCS responded by conducting its own analysis of the feasibility of the Treasury proposal, under contract with its auditor, Price Waterhouse. The conclusion was that the FCS was highly unlikely to achieve a triple-A rating under any circumstance, and that loss of GSE status and resulting lack of access to the agency bond market would jeopardize the continued viability of the FCS. Price Waterhouse estimated that in order to meet the proposed capital requirements, interest rates would need to be increased by 460 basis points and that up to 113,000 borrowers (with \$90 billion in higher risk loans) would need to be eliminated from the System.

The American Bankers Association (ABA), responding to accusations that

the association has never adequately documented its allegations of FCS predatory pricing, funded an in-depth study of the impact of FCS lending on the farm sector and the national economy. The study was released in the fall of 1990. Assuming that liberalizing collateral requirements on FCS loans sparked the boom in land values of the 1970's,

the report concluded that the farm financial crisis of the mid-1980's had its roots in overlending by the FCS.

The ABA study also alleged that the cash-flow consequences of the farmers' burden of debt servicing (due to FCS overlending) was the primary impetus for Government payments to farmers in

the 1980's, with roughly \$100 billion in Government payments to farmers resulting. The report did not discuss the role of the other three major farm lenders, nor the mandated role of the FCS in carrying out legislated farm policies during the period under study.

Table 14--Farm Credit System financial assistance expenditures, as of September 30, 1990

Use of funds	Amount Mil.dol.	Payment of interest	Repayment of principal
Third quarter 1986 capital preservation cash outs	417.17	System banks	System banks
Provide Financial Assistance	807.72	U.S. Treasury & System institutions	Assisted institutions
Redeem stock in liquidating banks	16.03	U.S. Treasury & System institutions	System institutions
Other Expenses	11.33		System institutions
Prefunding	8.75	U.S. Treasury	Financial Assistance Corporation
Total Financial Assistance Corporation bonds issued 1/	1,261.00		

1/ Funded by: 9.375 % bond due 07/21/2003; 9.450 % bond due 11/21/2003; 8.800 % bond due 06/10/2005; 8.200 % bond due 09/27/2005; and 8.200 % bond due 09/27/2005.

Source: Farm Credit System Assistance Board, Second Annual Report to Congress, June, 1990.

Farmers Home Administration Direct Lending and Delinquencies Drop

With greater loan restructuring activity and less new lending, loan volume and delinquencies fall.

The role of the Farmers Home Administration (FmHA) in supplying farmers with credit continued to shrink in 1990. Outstanding principal on FmHA's direct (insured) farm loans declined \$3.5 billion from mid-1989 to mid-1990. Outstanding loan volume is below \$20 billion for the first time in a decade. The decline can be attributed to reduced new lending volume, greater loan restructuring activity, and loan writeoffs.

Direct farmer loan program obligations for fiscal 1990 (year ending September 30) dropped below \$1 billion for the first time since 1972, to just \$921 million (table 15). As recently as fiscal 1985, lending had totaled nearly \$5 billion. Operating Loan (OL) program obligations slid \$123 million to \$733 million, while Farm Ownership (FO) program obligations declined to under \$80 million. Nearly \$200 million in OL lending authority remained unused at yearend. The reduction in OL obligations can be attributed to a stronger farm economy, closer scrutiny of loan requests, and fewer current FmHA borrowers.

Emergency Disaster (EM) loan program lending reached \$101 million, up from \$73 million in fiscal 1989. These loans are available to farmers who sustained losses due to adverse weather conditions, such as flood or drought. Lingered effects of the 1989/90 drought and \$28 million in loans to cover hurricane losses in Puerto Rico help account for the increase. Farmers are required to have purchased crop insurance to receive these loans, but this requirement was waived for the 1988-90 crop years.

Loan Delinquencies Down

Hindered by legal roadblocks in the mid-1980's, FmHA continues to sort through its backlog of delinquent loans. At mid-1990, \$6.7 billion in past due principal and interest payments was outstanding, but this was down sharply from \$8.7 billion a year earlier (table

16). The share of delinquent loan payments to total loan volume declined to 33.4 percent, the first decline in over a decade.

The core of loan delinquency problems resides with the EM and the Economic Emergency (EE) loan programs. The EE program, which has not been funded since 1984, provided loans to help farmers overcome economic hardship brought on by credit scarcity or a cost-price squeeze. Most loans under both programs were made from the late 1970's to the early 1980's. Delinquent payments under these programs accounted for \$4.6 billion, or 75 percent of the total delinquent FmHA payments at fiscal 1990 yearend (table 17). Of the delinquent EE and EM loan payments, \$4.3 billion has been past due for 4 or more years. These loans are the most difficult to resolve through debt restructuring.

Debt Restructuring Continues

Under rules established by the Agricultural Credit Act of 1987, FmHA continues to restructure loans delinquent for

180 days or more. With the objective of keeping farmers on the farm at the lowest cost to the Government, FmHA uses preservation loan servicing programs and debt settlement programs to restructure delinquent loan accounts.

Preservation programs are applied first and include such options as reducing interest rates, reamortizing debt, and if necessary, writing down debt to the calculated net recovery value of the collateral (market value less liquidation costs). When these servicing options fail to produce a debt repayment plan that brings loan payments current, the debt settlement program is activated. This program allows the borrower to pay off real estate loans (a loan buyout or writeoff) at the calculated net recovery value or, alternatively, lease the property from FmHA or exercise homestead protection rights.

Since the new policy was implemented in late 1988, some 50,000 farmers have been assisted, contributing to the drop in both total and delinquent loan volume. As of early November 1990, 6,835 borrowers had received loan

Table 15--Farmers Home Administration farmer program obligations, September 30, 1984, to September 30, 1990

Date 2/	Obligations 1/			Share of total	Outstanding principal of farmer programs 3/
	Total	Direct	Guaranteed		
	-----Million dollars-----			Pct.	Mil. dol.
1984	4,438.7	3,995.8	442.9 4/	10.0	26,093.2
1985	5,927.7	4,753.0	1,174.7	19.8	28,817.5
1986	4,367.5	2,807.9	1,559.6	35.7	29,240.4
1987	3,080.5	1,515.0	1,565.5	50.8	28,147.6
1988	2,320.7	1,065.8	1,254.9	54.1	28,242.6
1989	2,229.6	1,030.1	1,199.5	53.8	26,525.6
1990	2,193.2	921.3	1,271.9	58.0	23,684.0

1/ Obligations are the dollar amounts of funds loaned or guaranteed, including the dollar amount of interest rate assistance provided on guaranteed loans. 2/ Fiscal years. 3/ Total outstanding principal balance of loans guaranteed by FmHA and direct or insured FmHA loans at yearend. 4/ Includes \$289.9 million in guaranteed Economic Emergency loans.

Source: Farmers Home Administration, 616 Report, 4067 Report, and 205 Report, various issues.

writedowns of \$1.1 billion, while 7,039 had received \$1.5 billion of debt write-offs when they paid off their loans at the net recovery value.

Loan Writeoffs Remain High

Net writeoffs on FmHA's direct farmer loans decreased slightly from the previous fiscal year to \$3.1 billion in fiscal 1990. The continued high level of losses can be attributed to costly foreclosure activity and debt restructuring. Two-thirds of the writeoffs occurred for loans under the EE and EM programs, and with \$4.3 billion in long-term delinquent debt remaining in these programs, direct loan losses will remain high in the near future.

Value of Inventory Property Falls

The market value of farm real estate property held by FmHA in inventory fell to \$456 million on September 30, 1990, down \$100 million from last year. Just 3 years previously, the value of inventory property was close to \$800 million. Although the number of properties going into inventory was up over the previous fiscal year, the sale of existing inventory property was nearly double the acquisitions

Table 16--Farmers Home Administration direct farmer loan program delinquencies, June 30, 1984, to June 30, 1990 1/

Date	Number of active cases 2/ (caseload)			Principal outstanding		
	Delinquent 3/		Proportion	Delinquent 4/		Share of total
	Total	Total		Total	Amount	
	--- Number ---		Pct.	-- Mil. dollars --		Pct.
1984	446,855	158,237	35.4	25,369.0	5,397.5	21.3
1985	455,561	165,344	36.3	27,786.3	6,384.8	23.0
1986	429,146	157,391	36.7	27,834.6	6,835.2	24.6
1987	396,910	143,270	36.1	26,252.3	7,005.8	26.7
1988	383,571	151,486	39.5	25,395.7	8,749.7	34.5
1989	353,703	136,847	38.7	23,474.6	8,699.7	37.1
1990	305,551	95,915	31.4	19,926.9	6,665.8	33.4

1/ June 30 of year shown to account for the annual cyclical trend in delinquencies. 2/ Duplicated cases because some borrowers have loans under several different programs. Prior to 1988 active cases excluded those borrowers who are in foreclosure, bankruptcy, or liquidation status. Active cases do not include loans made to associations. 3/ Prior to 1988 a case was considered delinquent when a payment was more than \$10 and 15 days past due. Beginning in 1988, a case is delinquent if a payment is more than 30 days past due. 4/ Amount delinquent includes past due principal and interest payments.

Source: Farmers Home Administration, 616 report, various issues.

Table 17--Farmers Home Administration direct farmer loan program delinquencies by program, September 30, 1990

Direct farmer programs	Number of active cases 1/ (caseload)			Principal outstanding		
	Delinquent 2/		Proportion	Delinquent 3/		Share of total
	Total	Total		Total	Amount	
	---Number---		Pct.	--Mil. dollars--		Pct.
Farm ownership (FO)	99,421	17,219	17.3	6,428.2	477.9	7.4
Farm ownership -- nonfarm enterprises	945	191	20.2	37.5	3.9	10.5
Operating loans -- excluding youth (OL)	82,414	24,685	29.9	4,390.9	999.5	22.8
Operating loans -- youth	740	170	23.0	3.0	0.9	30.3
Emergency disaster (EM)	74,156	24,068	32.5	6,057.3	3,605.8	59.5
Economic emergency (EE)	29,915	11,498	38.4	2,405.9	1,009.7	42.0
Recreation	132	32	24.2	9.0	1.8	19.6
Soil and water	11,283	2,426	21.5	212.2	39.2	18.5
Economic opportunity	63	52	82.5	0.9	0.8	92.3
Total	299,069	80,341	26.9	19,544.2	6,138.8	31.4

1/ Duplicated cases because some borrowers have loans under several different programs. Active cases do not include loans made to associations. 2/ A case is considered delinquent when a payment is more than 30 days past due. 3/ Amount delinquent includes past due principal and interest payments.

Source: Farmers Home Administration, 616 report for September 30, 1990.

Farmers Home Administration Guaranteed Lending Grows

With less emphasis on direct lending, guaranteed lending activity grows, but use remains sluggish.

Guaranteed loan obligations totaled \$1.3 billion in fiscal 1990, up 3.5 percent from the previous year (table 18). This was the first year-to-year increase since fiscal 1987. Guaranteed loans accounted for a record 58 percent of FmHA's total farmer program obligations as direct lending was pared back.

Despite greater use of guarantees, demand by lenders remains sluggish. Only 39.2 percent of guaranteed operating loan authority and 48.5 percent of guaranteed farm ownership authority was obligated during the fiscal year (guarantee obligations are the amount of loan principal that FmHA has agreed to assure for repayment to the lender). A stronger farm economy provides some explanation for the weak demand as the financial position of farmers continues to improve.

Guarantee Programs

Most new guaranteed loans appear to be going to high-risk customers of participating lenders and not to new customers or to borrowers attempting to graduate from FmHA's direct loan programs. There are concerns that the shift from direct to guaranteed lending may not be meeting the credit needs of some farmers, especially direct borrowers.

The policy switch was mandated by the Food Security Act of 1985, under the rationale that the private sector is better suited to identify economically viable farms, that direct programs adversely alter farm credit markets, and that guarantees provide assistance at a lower cost than direct loans.

Under a loan guarantee, FmHA agrees to guarantee repayment of up to 90 percent of an approved loan made by a

qualifying lender if the farmer/borrower defaults on the loan. Almost all loan guarantees are made for farm ownership and farm operating purposes, including the refinancing of existing debt; the financing of machinery, livestock, and real estate purchases; or payment of annual farm operating expenses.

Generally, family-sized farm operators are eligible for guaranteed loans if they are unable to obtain needed credit without such a guarantee. Most guaranteed loans are made by commercial banks, but Farm Credit System lenders also participate to a significant extent.

Interest Rate Buydowns Stable

Obligations under the Interest Rate Buydown program were about the same as last year, about \$14 million. The program provides interest rate assistance to guaranteed borrowers unable to project a positive cash flow. Under the program in fiscal 1990, FmHA matched interest rate reductions offered to the borrowers by the participating lender, up to 2 percentage points.

Use of the program by lenders has never reached its original expectation. Lenders claimed the reduction in interest rates was costly--lowering their incentive to participate in the program. The program has been changed for 1991.

Demonstration Project for FCS Property Purchase

Nearly \$7 million in FmHA loan guarantees were issued under a joint Farm Credit System demonstration project for the purchase of farmland. The 3-year project was set up by the Agricultural Credit Act of 1987 to help FmHA-eligible borrowers purchase inventory

farms held by FCS institutions. Under the program, FmHA guarantees loans made by participating lenders and buys down interest rates by up to 4 percentage points for a period of 5 years.

The program is in part a policy response to cuts in funding for direct farm ownership loans and part of an effort to help socially disadvantaged and beginning farmers purchase farms.

Delinquency Rates and Losses Remain Stable

Outstanding principal on guaranteed loans continues to rise, reaching over \$4.1 billion on September 30, 1990 (table 19). However, delinquent payments on guaranteed loans remain small compared to the direct lending programs. Delinquent loan payments represented only 1.4 percent of total guaranteed loan volume at fiscal yearend, but over 31 percent of the direct loan portfolio. As with the direct loan portfolio, emergency loans have the highest delinquency rates among guaranteed loans (table 20). The emergency programs have not been funded since the early 1980's.

FmHA losses on guaranteed farm loans fell slightly in fiscal 1990 to \$57 million dollars. This amount represents 1.8 percent of guaranteed loans outstanding at the beginning of the year. Losses suffered on defaulted guaranteed loans remain small compared with the direct lending program losses. This is because the majority of guarantees are relatively new, fewer were made for emergency purposes, participating lenders must incur some of the default risk, and the average borrower in the guarantee program tends to be more creditworthy than the direct loan borrower.

The outstanding volume of Farmers Home Administration's guaranteed farm loans surpassed \$4.1 billion at the end of fiscal 1990, a 28-percent increase from the previous year.

Table 18--Farmers Home Administration major farmer program lending authority and obligations, fiscal 1990

Program	Lending authority 1/	Obligations 2/
-- Thous. dollars --		
Farm ownership (FO)		
Direct	80,000	79,983
Guaranteed	719,279	348,720
Operating loans (OL)		
Direct	932,500	733,291
Guaranteed	2,315,985	908,748
Emergency disaster (EM)	600,000	101,510
Interest rate buydown program	50,000	13,897

1/ Budgetary limits on the volume of new loans that can be issued during the year. 2/ Actual amount of lending authority committed to loans or loan guarantees.

Source: Farmers Home Administration.

Table 19--Farmers Home Administration guaranteed farmer loan program delinquencies, September 30, 1984, to September 30, 1990

Date 1/	Number of active loans			Principal outstanding		
	Delinquent		Proportion	Delinquent 2/		Share of total
	Total	Total		Total	Amount	
	--- Number ---		Pct.	-- Mil. dollars --		Pct.
1984	4,111	235	5.7	484.2	16.2	3.3
1985	7,160	313	4.4	834.5	19.3	2.3
1986	15,137	723	4.8	1,664.5	31.4	1.9
1987	23,558	1,106	4.7	2,384.0	42.6	1.8
1988	35,746	1,388	3.9	3,177.6	54.1	1.7
1989	38,840	1,733	4.5	3,243.7	60.6	1.9
1990	48,605	1,880	3.9	4,139.8	58.5	1.4

1/ September 30 of year shown. 2/ Amount delinquent includes past payments of principal and accrued interest.

Source: Farmers Home Administration, 4067 report, various issues.

Table 20--Farmers Home Administration guaranteed farmer loan program delinquencies by program, September 30, 1990

Guaranteed farmer programs 1/	Number of loans			Principal outstanding		
	Delinquent		Proportion	Delinquent 2/		Share of total
	Total	Total		Total	Amount	
	---Number---		Pct.	-Mil. dollars-		Pct.
Farm ownership	9,356	369	3.9	1,287.1	15.0	1.2
Operating loans	38,570	1,351	3.5	2,775.0	31.7	1.1
Emergency loans	9	1	11.0	0.4	0.4	100.0
Economic emergency	642	146	22.7	73.3	10.0	13.7
Emergency live-stock	28	13	46.4	3.9	1.3	31.8
Total	48,605	1,880	3.9	4,139.8	58.5	1.4

1/ Emergency, Economic Emergency, and Emergency Livestock guaranteed loan programs are currently not being funded. 2/ Amount delinquent includes past due payments of principal and accrued interest.

Source: Farmers Home Administration, Report 4067 for September 30, 1990.

Legislation Alters Farmers Home Administration Programs

Last year's budget and farm bills tightened FmHA's debt restructuring rules, and will bolster guaranteed lending, while trimming direct lending.

Farmers Home Administration (FmHA) programs were affected by the Omnibus Budget Reconciliation Act of 1990 and the Food, Agriculture, Conservation, and Trade Act of 1990. The budget act primarily sets lending authority while the farm bill tightens debt restructuring rules, imposes conservation requirements on inventory property, and aids the transition from direct to guaranteed loans.

Loan Guarantees Encouraged

The legislation includes provisions that encourage the use of guaranteed loans. To assist borrowers in graduating from direct to guaranteed loans, FmHA is required to establish a market placement program for borrowers capable of graduation. Also, lenders are no longer required to fully liquidate a guaranteed loan to receive loss payments from FmHA. Lenders had complained about the inability to restructure guaranteed loans with a debt writedown.

The matching requirement of the Interest Rate Buydown program was abolished. Borrowers can still receive interest rate reductions of up to 4 percentage points, but lenders are no longer required to contribute half the cost. Interest rate reductions are no longer limited to 3 years, and the program has been extended through fiscal 1995. Lenders had indicated that the matching requirement was costly, deterring participation.

As another incentive to increase loan guarantee use, Farmer Mac was given the authority to operate a secondary market for guaranteed farm loans. Also, a demonstration project, providing loan guarantees at reduced interest rates for purchase of FCS-held farmland, was extended for another year.

Credit Supervision Strengthened

Future FmHA lending practices will look more like those of private sector lenders. Already in the past year, FmHA began moving some responsibilities from the county supervisor to spe-

cialized personnel. Loan forms, credit terminology, and underwriting standards used by the private sector are to be adopted. Also, FmHA must standardize the evaluation of loan applications and review direct loans at least biannually and guaranteed loans at least annually. Some borrowers will undergo financial and farm management training as a prerequisite to receiving FmHA credit.

Inventory Property and Conservation Rule Changes

New rules for FmHA inventory real estate should accelerate the disposal rate. Property classified as suitable for purchase by an FmHA-eligible borrower will now be available for 1 year instead of 3 years before being offered to other purchasers. Beginning farmers will receive preference when suitable property is sold. Property will be priced at its appraised market value; property classified as surplus can be sold by advertised bids or negotiated sales.

Perpetual wetland conservation easements to protect and restore wetlands or converted wetlands are to be established on FmHA inventory property. To avoid adverse impact on crop production, the number of crop or forage acres subject to a conservation easement is capped. Rules permitting borrowers to cancel FmHA debt in return for granting FmHA conservation easements for wetlands and highly erodible land are strengthened. Borrowers with delinquent loans issued after December 25, 1985 and new applicants eligible to purchase suitable inventory property can apply for the debt cancellation.

The cap on Soil and Water loans was lowered to \$50,000 per borrower from \$200,000 for direct loans and \$300,000 for guaranteed loans. The cap was lowered to provide access to limited funding for more borrowers. Limited resource interest rates are now available for direct loans, which can no longer be used to drain, dredge, fill, or alter existing wetlands.

Debt Restructuring Rights Curtailed

Debt restructuring rights have been curtailed, which should lower FmHA's loan loss rate. Borrowers with delinquent loans are now ineligible for debt restructuring, such as principal writedowns, if they possess unsecured nonessential assets that could be applied against the loan to bring it current. These assets must also be included in debt forgiveness calculations when determining the Government's net recovery value of a loan (value of collateral after subtracting estimated foreclosure expenses). Calculations must include all assets listed on the security agreement, regardless of whether some assets are missing or were sold without approval. Before, it was possible to obtain debt restructuring without these requirements, allowing some borrowers to reap unintended financial rewards.

Borrowers eligible to buy back (buy out) or lease property lost to FmHA now must have acted in "good faith" when dealing with FmHA, and payment tardiness must have resulted from factors beyond their control. Buyback and leaseback rights are now limited to farm real estate and to the principal farm residence.

Debt buyouts (buybacks) now carry 10-year recapture agreements instead of 2-year agreements. Agreements require the former borrower to repay FmHA any gain on real estate collateral sold (difference between the net recovery value and the property's fair market value at sale time) within the 10-year period, thereby reducing any potential windfall. Recapture is not activated if the sale or transfer is to a spouse or child actively engaged in farming on the property and results from death or retirement of the former borrower.

To prevent financial windfalls and reduce the incentive to remain delinquent, the new rules limit borrowers with loans made after January 6, 1988 to one lifetime debt buyout or writedown. Bor-

rowers with loans made before January 6, 1988 become subject to the one-time limitation after their current debt is restructured. Regardless of when the loan was made, lifetime debt forgiveness is now capped at \$300,000 per borrower. Previously, there were no caps on the number or amount of borrowers' debts that could be forgiven.

Outlook for FmHA

FmHA's farm loan portfolio should continue to dwindle in 1991 as loan write-offs remain high and new lending activity diminishes. Outstanding volume on direct loans at the end of fiscal 1990 stood at \$19.5 billion. If last year's paydown pace continues in 1991, year-end volume would slip below \$17 billion. Delinquency rates will continue to

trend downward as the rapid pace of loan restructuring holds. Demand for FmHA direct loans is expected to remain soft, while guarantee lending could see an increase with the recent changes in program design. Barring a major natural disaster such as widespread drought, ample funds should be available for the Emergency Disaster loan program.

Availability of loan funds for the Farm Ownership and Operating Loan programs for fiscal 1991-95 is set by the budget act (table 21). The legislation calls for a \$482-million transfer of direct lending authority to guaranteed loan authority in fiscal 1991. The transfer is subject to a formula that can reduce the actual transfer amount. If the entire amount is transferred, about \$537

million in loan funds would be available for these two direct loan programs (compared with \$813 million in 1990 obligations).

The formula specifies that if more than 70 percent of guaranteed loans in the previous fiscal year were issued to persons who had not previously received a direct loan, the annual transfer is determined by multiplying the authorized transfer amount by the ratio of new borrowers not previously receiving a guaranteed or direct loan to the total number of borrowers issued guaranteed loans in the preceding year. This formula ensures that direct loan program funding is not cut too quickly to help farmers who are having difficulty obtaining credit through the guaranteed loan programs.

Table 21--Farmers Home Administration authorization levels, fiscal years, 1991-95

Type of loan	1991	1992	1993	1994	1995
Million dollars					
Direct (insured) programs:					
Operating Loans	936	973	1,012	1,053	1,095
Farm Ownership	83	87	90	94	97
Total direct loans	1,019	1,060	1,102	1,147	1,192
Guaranteed loan program:					
Operating Loans	2,412	2,509	2,609	2,713	2,822
Farm Ownership	744	774	805	837	871
Total guaranteed loans	3,156	3,283	3,414	3,550	3,693
Annual transfer from direct to guaranteed loan programs 1/	482	614	760	859	907

1/ The amount the Secretary must transfer from direct to guarantee funding. If more than 70 percent of guaranteed loans in the preceding fiscal year went to borrowers not previously receiving direct loans, then the transfer is reduced by the ratio of the number of guarantee borrowers not previously receiving a direct or guaranteed loan to the total number of borrowers provided guarantee loans. The amount transferred must be proportional to the original authorization shares for farm operating and farm ownership programs.

Life Insurance Company Farm Loan Portfolios Continue to Improve

Loan delinquency and foreclosure levels are the lowest since the early- to mid-1980's. The outlook for 1991 is quite favorable.

Historically, agricultural real estate mortgages have been an important life insurance company investment and a key source of farm real estate loan funds. Approximately 34,600 agricultural mortgage loans were held by about 15 life insurance companies on June 30, 1990. During 1990, the agricultural mortgage portfolios of the life insurance companies continued to improve in quality.

Delinquencies Declining From Mid-1980's Peaks

Delinquency rates based on the number of loans held by life insurance companies were lower for agricultural mortgages than for nonagricultural loans throughout the 1970's. The agricultural delinquency rate surpassed the nonagricultural rate in June 1981 and has done so continuously since June 1982 (table 22). The June 1987 agricultural mortgage delinquency value of 9.12 percent was the highest recorded since the American Council of Life Insurance initiated its survey in 1954. Agricultural loan delinquency has declined to 3.41 percent, still in excess of the rate for nonagricultural mortgages.

The delinquency rates on the volume of loans outstanding are proportionately higher for agricultural mortgages because the agricultural loans are larger on average than nonagricultural loans. The percent of agricultural mortgage debt that is delinquent has exceeded the nonagricultural rate since June 1978. The share rose to a record 19.85 percent in June 1986 but declined to 5.26 percent by June 1990 (table 22). Some \$479 million of life insurance company agricultural mortgage debt was delinquent on June 30, 1990.

Foreclosures Down From Earlier Highs

Agricultural mortgage foreclosure rates by number of loans have exceeded nonagricultural rates since June 1979, and

stood at 1.31 percent in June 1990 (table 23), down from the record-high 3.91 percent recorded 3 years earlier. A total of 453 life insurance company agricultural mortgage loans were in the process of foreclosure on June 30, 1990, down from 1,915 on June 30, 1986.

Agricultural mortgage foreclosure rates by dollar amount of loans outstanding have exceeded nonagricultural rates since June 1978 and reached record levels in the 1980's (table 23). On June 30, 1986, a record 8.23 percent of the amount outstanding was in the process of foreclosure, but by June 30, 1990, it had declined to 2.23 percent. A total of \$203.6 million in life insurance company farm mortgage loans was in the process of foreclosure on June 30, 1990, down from \$408.7 million a year earlier.

The number and dollar amount of agricultural and nonagricultural loans actually foreclosed during 1980-90 are presented in table 24. Agricultural mortgage foreclosures rose each year of the 1980's until 1986 when they peaked at \$827.5 million. During 1982-85, the dollar amount of agricultural mortgage

foreclosures even exceeded that for nonagricultural mortgages. Life insurance company agricultural loan foreclosures during the 1980's through December 31, 1989 totaled \$3.5 billion, with 43.4 percent occurring during 1986-87. Completed agricultural foreclosures declined to \$204.4 million in 1989 and to \$42.1 million for the first half of 1990, compared with \$116.6 million recorded in that same period of 1989.

Outlook Is Quite Favorable

The many adjustments of the 1980's have led to financially sounder farm loan portfolios. There will be good opportunities in 1991 for life insurance companies to make profitable farm mortgage loans, but the competition for the better quality loans will be keen. Insurance companies will continue to view agricultural lending with some caution. As farmland values rise, the industry will continue disposing of farm property acquired earlier due to borrower financial stress. But because the amount of acquired property holdings is down, this will be a less urgent concern than during the mid-1980's.

Table 22--Life insurance company mortgage loan delinquencies, 1984-90 1/

End of month	Rates by number of loans		Rates by amount	
	Nonagricultural mortgages	Agricultural mortgages	Nonagricultural mortgages	Agricultural mortgages
--- Percent ---				
1984 June	1.17	3.88	.93	10.38
Dec.	1.24	3.78	.90	9.58
1985 June	1.15	6.26	1.02	14.89
Dec.	1.43	6.34	1.16	15.06
1986 June	1.33	9.08	1.91	19.85
Dec.	1.64	8.30	2.65	17.01
1987 June	1.46	9.12	2.96	18.01
Dec.	1.60	6.83	2.61	14.31
1988 June	1.53	6.75	2.77	13.27
Dec.	1.74	4.44	2.44	8.87
1989 June	1.55	4.68	2.75	8.65
Dec.	1.68	2.68	2.37	4.74
1990 June	1.87	3.41	2.94	5.26

1/ Delinquent loans (including loans in the process of foreclosure). A delinquent loan is a nonfarm mortgage with interest payments in arrears at least 2 months (60 days if other than a monthly pay) or a farm loan with interest in arrears more than 90 days. Reporting companies account for approximately 80 to 85 percent of the mortgages held by U.S. life insurance companies depending on the date of the survey.

Source: American Council of Life Insurance, Investment Bulletin, various issues.

In 1991, life insurance companies will differ in aggressiveness in seeking new loans. Some, stung by earlier problems, will be out of the market. Other firms will offer funds only for renewals or increases of existing good loans. Those companies active in the market will report that available funds exceed qualified agricultural applications.

The post-1981 decline in farm debt held by life insurance companies (8 of the 9 past years saw decreases) is expected to end in 1991. Total life insurance company farm loans outstanding are projected to increase about 5 percent in 1991. Most of the increased lending will consist of relatively large loans in the West and Southwest.

Several emerging issues will shape future life insurance lending practices. These include, in addition to farm borrower profitability: (1) the degree of success of the Farmer Mac secondary mortgage loan process; (2) the efforts of the agricultural lending industry in moving toward improved, standardized financial reporting standards; and (3) the risks associated with environmental concerns.

Table 23--Life insurance company mortgage loans in the process of foreclosure, 1984-90 1/

End of month	Rates by number of loans		Rates by amount	
	Nonagricultural mortgages	Agricultural mortgages	Nonagricultural mortgages	Agricultural mortgages
--- Percent ---				
1984 June	.16	1.14	.30	2.97
Dec.	.16	1.75	.18	4.54
1985 June	.17	2.16	.28	6.00
Dec.	.21	2.86	.31	7.11
1986 June	.25	3.42	.69	8.23
Dec.	.29	3.84	.84	7.83
1987 June	.37	3.91	1.11	7.98
Dec.	.41	3.02	1.07	6.43
1988 June	.46	3.36	1.16	6.33
Dec.	.45	2.60	1.22	4.83
1989 June	.43	2.35	1.38	4.67
Dec.	.43	1.30	1.29	2.28
1990 June	.46	1.31	1.56	2.23

1/ Reporting companies account for approximately 80 percent of the mortgages held by U.S. life insurance companies depending on the date of the survey. Loans in foreclosure include those on which foreclosure action has been authorized, including any involved in a subsequent filing of bankruptcy. Beginning in 1988, the loans in foreclosure category includes loans in redemption period.

Source: American Council of Life Insurance, Investment Bulletin, various issues.

Table 24--Life insurance company mortgage loans foreclosed, 1980-90 1/

Year	Nonagricultural mortgages		Agricultural mortgages	
	Number	Thou. Dollars	Number	Thou. dollars
1980	549	63,237	26	18,160
1981	552	58,491	47	55,741
1982	760	131,392	167	170,310
1983	868	114,993	306	347,002
1984	1,024	242,428	475	289,251
1985	1,033	328,558	1,000	530,235
1986	1,541	1,143,082	1,654	827,472
1987	2,048	1,580,027	1,515	691,914
1988	1,196	2,530,105	727	364,414
1989	1,098	2,178,949	356	204,361
1990 2/	526	1,432,804	62	42,124

1/ Loans foreclosed include those for which title to the property or entitling certificate was acquired during the period shown, either through foreclosure or voluntary conveyance in lieu of foreclosure. Dollar amounts include principal outstanding at the time of the foreclosure, amounts capitalized for interest, foreclosure costs and any advances made to protect the collateral. 2/ January 1 through June 30. Data beginning in 1988 are not strictly comparable with earlier years because of changes in the survey sample. Beginning in 1988 loans in redemption are classified as loans in process of foreclosure; in earlier years these loans were reported as loans foreclosed. For this reason there may be some double counting of foreclosed loans, particularly agricultural properties, beginning in 1988.

Source: American Council of Life Insurance, Investment Bulletin, various issues.

Long-Run Future Clouded for Agricultural Lenders

Despite a fast-paced recovery, agricultural lenders face rapid changes in the agricultural and financial sectors that threaten future prosperity.

Farmers and their lenders have recovered substantially from the financial turmoil of the early- to mid-1980's. Farm debt has been reduced by \$59 billion since its 1983 peak through loan restructurings, writeoffs, or paydowns. In just 6 years, inflation-adjusted farm debt has returned to levels of 25 years ago, while farm asset values have recouped somewhat from depressed levels and net farm income has vaulted to record levels.

Despite the sounder financial condition of the agricultural sector, the future for producers and agricultural lenders is clouded with uncertainties. Risks to farm income stability appear to be growing as rapidly changing world politics increase the likelihood of demand shocks affecting world agricultural trade.

The fall of the communist regimes in Eastern Europe raises short- and intermediate-term questions about the ability of formerly Marxist countries to pay for food imports, and long-term questions about their potential as agricultural exporters. Another source of uncertainty arises if GATT trade reform is not eventually successful. This could dampen markets for U.S. agricultural trade and heighten the risks to farm income. Political instability in the Persian Gulf clouds the outlook for world food trade and increases risks to the sector by destabilizing oil and other energy prices.

These events are occurring at a time when agriculture's challenges are increasing at home. The Food, Agriculture, Conservation, and Trade Act of 1990 changes commodity programs by reducing acreage eligible for farm program payments by 15 percent. In re-

turn, farmers are offered greater flexibility in planting crops that offer the best return. This greater planting flexibility could increase the variability of farm income, especially in the initial years as farmers learn how their aggregate behavior is likely to affect prices for alternative crops.

The agricultural recovery came at great cost to the Federal Treasury, with farm commodity programs alone costing over \$130 billion for the decade. Given Federal budgetary constraints, broad, unfocused aid is less likely to be available when the next shock threatens sectoral incomes and asset values. The 1990 act provides an estimated \$44 billion for commodity income and support programs for the next 5 years. The FmHA, which financed thousands of distressed farmers in the 1980's, has diminished resources to assist farmers in the 1990's. Although FmHA authority to guarantee loans is increasing, direct lending authority has substantially diminished; these two types of assistance are imperfect substitutes.

Lending Environment More Uncertain

Agricultural lenders are facing a rapidly changing business environment as well. Major structural changes in financial institutions are imminent. The weakened condition of savings and loans and commercial banks, the high costs of rescuing failed institutions, and the dwindling of the federally backed deposit insurance fund necessitate the overhaul of laws governing the operation, powers, and regulation of financial intermediaries. The private insurance industry, which holds nearly 12 percent of farm real estate debt, is experiencing finan-

cial difficulties and may face regulatory changes as well.

Any changes that do occur will increase risks as the financial industry adjusts to new regulations and powers and the shakeout in financial services continues. Already, the United States has lost 2,000 banks since 1983. The Nation's 4,193 agricultural banks face greater competition as an overhaul of banking laws could bring more consolidation and increased interstate banking.

Some Agricultural Lenders Still Weakened from Last Crisis

Agricultural banks have largely recovered from the financial crisis, with high levels of capital relative to total assets and low rates of net chargeoffs, nonperforming loans, and restructured loans. However, a sizable minority (2.5 percent or 105 banks) have nonperforming loans equal to at least 50 percent of primary and secondary capital.

The FCS's financial condition remains vulnerable to an erosion of the farm economy. At-risk capital held by the restructured System is roughly half that at the beginning of the 1980's while loan volume has fallen by three-eighths, indicating a drop in the System's capital position. Nonaccrual loans still account for 5.2 percent of loans outstanding and 46 percent of unprotected capital plus allowances for loan losses. The rate of delinquent loans in the FmHA's portfolio remains a dismal 46 percent. Thus, some lenders are vulnerable to even moderate declines in farm profitability and asset values, which could result from the increased instability in the farm and financial business environments.

Do Advance Deficiency Payments Affect Credit Markets?

by
Merritt R. Hughes¹

Abstract: Since 1982, \$26.3 billion in advances have been issued on target deficiency payments for USDA commodity programs, lowering credit usage according to some analysts. To the extent that advance deficiency payments lower borrowing, their effect impacts other Federal programs that increase borrowing. For example, Government costs of the FmHA guaranteed operating loan program may be more difficult to justify if farmers need less credit. The magnitude of the interactive forces is ambiguous due to lack of data and the number of factors affecting credit volume. For a guideline, however, the volume of advance deficiency payments is compared with credit extended to farmers under FmHA guaranteed lending programs and yearly changes in institutional farm debt. Results reveal that advance payments were inversely related to FmHA guaranteed obligations and the changes in private institutional farm debt during most of the 1980's.

Keywords: Advance deficiency payments, farm credit, Federal farm programs

Lending to agriculture reached a peak in 1983. During the next 6 years it fell almost 30 percent, down to \$136 million by 1989. The most publicized and probably most important reason for the decline was the farm financial crisis. In the mid-1980's land values plummeted, reducing the value of collateral backing loans and, combined with the shortfall in cash-flow, leading to widespread cessation of loan payments and a precipitous rise in farmer/borrower defaults. As lenders charged off loans and farmers became more cautious in their use of credit, total farm debt declined.

Another, less well known, contributor to the decline in farm lending may have been the policy of advance payments of Federal farm programs. Advance deficiency payments were begun in 1982 to encourage program participation and improve cash-flow. According to a recent survey of commercial bankers and administration officials, Federal advance deficiency payments may be reducing the amount of credit advanced to farmers. Officials of the American Bankers Association, the Independent Bankers Association of America, the American Farm Bureau, and the Farmers Home Administration (FmHA) have estimated that advance deficiency payments reduced the amount of credit

granted to farmer/borrowers by as much as 10 to 25 percent in some years.

Because farmers may borrow less when advance payments are an option, the advance payments program may have helped keep down production expenses for farmers and also lowered the risk of default for farm lenders. But some effects of the advances may overlap with or run counter to the effects of other Federal programs. For example, Government costs of FmHA's guaranteed operating loan program may be more difficult to justify if farmers need less credit.

In practice, identifying the interaction is difficult since the results of programs can be measured in a variety of ways. It is difficult to distinguish between "cause and effect" on the one hand, and simultaneous but unrelated events on the other. The interrelationship of FmHA loan guarantee programs with the policy of advance deficiency payments provides an example that can be used to think through how program interaction may occur.

An FmHA Program Shift to Guarantee Lending

About the time that farm lending peaked and advance payments began, a policy shift took place at FmHA. In the late 1970's and early 1980's FmHA program costs and budgetary outlays rose steeply. At the end of 1983, FmHA began

placing greater emphasis on programs designed to guarantee loans of private institutional lenders and less emphasis on direct lending.

FmHA direct lending programs (offering subsidized loans directly from FmHA to the farmer/borrower) were initiated and administered as social programs that were not necessarily intended to pay for themselves. Guaranteed loans, on the other hand, were for the most part not priced below the rate that would otherwise be offered by private lenders. Guarantees essentially fulfilled the function of making credit available to some farmers rather than reducing the cost to those farmers.

Although FmHA was provided with the authority to guarantee operating and ownership farm loans in 1972, guaranteed obligations amounted to less than \$100 million annually through 1983. Beginning in fiscal 1986, the Administration began supporting the shift from direct farm loans to loan guarantees by increasing the share of total authorizations going to guaranteed loans. While \$4 billion in total was authorized for each year during 1986-88, the portion allocated to guarantees rose from \$2 billion to \$3 billion.

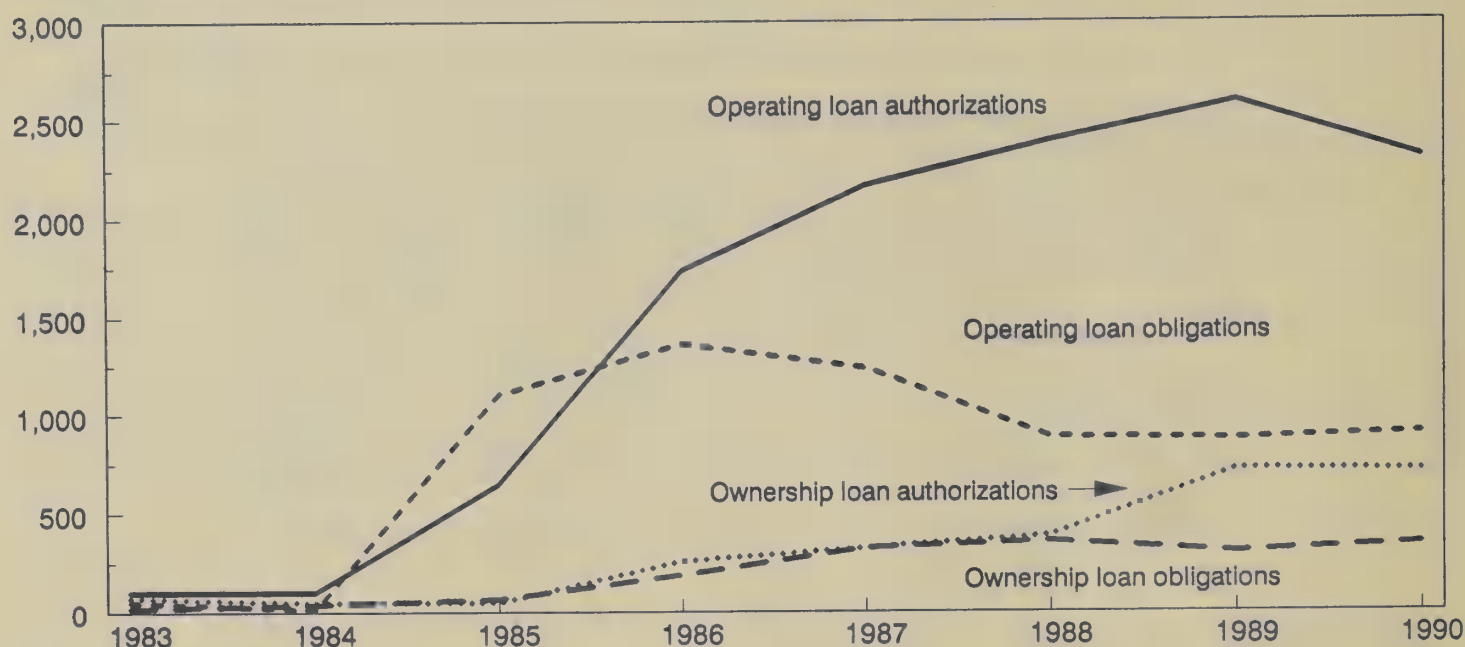
While the amount of money borrowed under the direct loan programs was usually the maximum amount available during those years, borrowing under the guaranteed loan program fell far short

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Figure A-1

FmHA Operating and Ownership Loan Guarantees – Authorizations and Obligations, 1983-90

\$ million



of the amount available. In fact, under the guaranteed loan program, as amount of funds authorized continued to rise through 1989, the amount actually dispersed declined from 1986 through 1988, then leveled off for the next 2 years (figure A-1).

A Rise in Advance Deficiency Payments

The USDA Agricultural Stabilization and Conservation Service makes deficiency payments to farmers to supplement their income when the market price of a program commodity is lower than a set or target price. Advances on target price deficiency payments have been issued since 1982. Farmers growing corn, wheat, barley, sorghum, oats, rice, and upland and extra-long staple cotton have been eligible for advance payments every year since 1982 with the exception of 1984.

Advance payments were increased substantially in 1985 and 1986, and have ranged up to 50 percent of total forecast payments for some crops. In 1986, all crops enrolled in the programs were eligible for at least 30 percent of payments in advance. Eligibility for advances increased even further in 1987 and 1988, but since total payments declined, actual levels of advances declined as well.

Crowding Out or Supplementing?

Lower-than-authorized use of the FmHA guaranteed operating loan program could be due to either the lower-than-expected use of operating loans in general by farmers, or lower use of guarantees on loans. Advance deficiency payments can reduce the demand for operating loans because the advance funds are made available at the beginning of the growing cycle, at the same time operating loans are extended. Advance deficiency payments could also contribute to lower use of FmHA guarantees by private lenders by providing better cash-flow to farmers. While the first is an effect on the demand side of the credit market, the second is an effect on the supply side.

It is likely that the impact on demand for FmHA guaranteed lending would be more evident than on FmHA direct lending. Because FmHA direct loans are less expensive than private lending, FmHA direct lending programs are probably faced with more excess demand than private lenders. If advance payments cause demand to shrink at the same rate for both types of loans, demand for private loans (with or without the guarantee) will fall short of supply before FmHA direct loans. In fact, it is likely that the demand for private credit will actually fall faster than demand for

FmHA direct loans. The marginal savings from doing without the more expensive credit is greater than from forgoing subsidized credit. So farmers as a group are likely to reduce their use of private credit before lowering their demand for FmHA direct loans.

Since private lenders do not have published records of expected or preferred lending levels, the gap between the volume of lending that private lenders expect to engage in, and what they actually contract, is not available. Instead, the most readily measurable result would be a widening gap between authorizations and obligations of guaranteed operating loans or a decrease in obligations, since FmHA guarantees have a published authorized supply level and are offered at rates set by private lenders.

Supply-side factors may also come into play. It could be that the need for guarantees by lenders is reduced. Private lenders are likely to enroll loans in the guarantee program only if the credit quality is borderline. Less than borderline-quality loans would not be contracted since the lender is liable for some of the cost in the case of default. Better than borderline-quality loans would not be enrolled in the program because the process of enrollment itself is not without costs.

The borderline of creditworthiness is much broader in long-term than in short-term lending. The extended time horizon involves a greater uncertainty over the potential for decline in the borrower's creditworthiness, so more borrowers would likely be considered borderline for long-term lending. And, in fact, the volume of FmHA farm ownership guaranteed credit, which is long-term, has been near the authorization limit in most years.

For short-term loans, creditworthiness is less ambiguous because there is less time for the farmer to encounter unforeseen problems. Evidence suggests that the majority of short-term loans that carried a guarantee have gone to previous clients whose creditworthiness was declining. Since 1986 as the farm financial crisis subsided, the use of guarantees on short-term loans has also diminished, possibly reflecting a corresponding decrease in the number of clients with borderline credit quality.

As with most issues in economics, probably both the supply and demand sides are affected. Regardless, one way to gauge the potential net impact of advance payments is to consider their volume relative to the FmHA programs and the credit market itself. On an individual farm level, the issue is more important for some types of farmers than others. For example, for farmers who are in the commodity program but are not eligible for FmHA loans, the idea of FmHA loan displacement is irrelevant.

Volume of FmHA Guaranteed Lending Versus Advance Deficiency Payments

Advance deficiency payments were compared with FmHA operating loan guarantees, and with changes in volume both of private institutional farm lending and FmHA farm lending for the 1982-90 period. No information is regularly published by any institutional lender for new loans contracted. However, comparing yearly changes in outstanding loan volume can serve as a rough guide. The value of advance deficiency payments includes the payments due under provisions of a given crop-year program, and includes both payments in cash and the face value of generic certificates issued in lieu of cash (table A-1).

From 1986 to 1990, advance deficiency payments amounted to more than 30 percent of the yearly change in total private institutional farm lending. In 1988 and 1989, payments were more than twice as large as the change in farm lending. In 1990, the share dropped to slightly above 60 percent. That figure is still high compared with 18 percent in 1982.

In the majority of years since 1982, the value of advance deficiency payments varied inversely with the change in private institutional loan volume, both in terms of nonreal estate farm lending and total farm lending. One possible explanation is that advance deficiency payments crowded out private lending, as creditors have suggested. Obligations of FmHA guarantees on operating loans

mimic the directional changes in private institutional farm loan volume from 1984 through 1988, then stayed level past 1989 despite both an increase in private lending and lower FmHA direct lending.

A comparison of advance deficiency payments and FmHA direct lending show a very different dynamic. Except for 1984, both advance deficiency payments and FmHA farm loan volume increased from 1982 to 1985. In 1988 and 1989, both declined. Only in 1986 and 1987, years of financial stress in the farm sector, did advance deficiency payments increase significantly at the same time FmHA loan volume decreased.

The rough guide provided by the volume of advance deficiency payments for the impact on credit markets may be a low estimate of the total impact of Federal program advances on credit markets and credit programs because other programs likely had similar effects on the use of credit. Other Federal programs that have been as likely to contribute to the reduction of farm debt are the Conservation Reserve Program and the dairy termination program. Farmers received \$655 million and \$587 million, respectively, through these programs in 1987 alone.

But potential effects of advance deficiency payments on farm credit programs cannot readily be generalized to other policy initiatives. The interactive effects of Federal programs are numerous and difficult to sort out. For exam-

Table A-1--Advance deficiency payments and yearly change in Farmers Home Administration (FmHA) farm loans compared with yearly change in total institutional farm lending, 1982-90

Item	Fiscal years								
	1982	1983	1984	1985	1986	1987	1988	1989	1990
----Million dollars----									
Advance deficiency payments	611	1,102	0	2,597	5,119	5,134	4,471	4,024	3,230
FmHA farm loan volume change	3,160	235	1,340	1,279	-322	-567	-1,628	-2,839	-4,058
FmHA operating loan guarantee obligations	47	51	111	1,107	1,367	1,241	893	879	909
Total private institutional farm loan volume change 1/	3,309	3,451	-445	-11,741	-13,417	-7,276	-1,267	1,253	5,314

1/ Excludes individuals and others, and FmHA farm loans.

Sources: USDA, Economic Research Service, and Agricultural Stabilization and Conservation Service.

ple, the Federal Multiple Peril Crop Insurance (MPCI) program may lower farm debt levels by reducing the financial buffer needed for production. On the other hand, the MPCI may also raise debt levels by making lenders more willing to extend credit. Some of the interactive effects have been documented. For example, ad hoc deficiency payments have been cited by several analysts as contributing to lower-than-anticipated enrollment by farmers in the MPCI program.

The volume of advance payments of Federal agricultural programs has been substantial relative to farm loan volume. While there is no direct evidence that Federal farm credit programs have been impacted by advance payments, the po-

tential rises in step with the alternative funding source.

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Have Mergers Improved the Financial Performance of Farm Credit Banks?

by
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Abstract: The financial crisis in agriculture of the 1980's precipitated a number of changes in the structure and management of the Farm Credit System (FCS), which were mandated or encouraged by the Agricultural Credit Act of 1987. The purpose of this special article is to document, using standard financial analysis techniques, changes in financial performance of certain FCS institutions before and after major provisions of the 1987 act took effect. Specifically, the effect of mergers of Federal Land Banks and Federal Intermediate Credit Banks is examined. No significant impact of mergers on cost control are observed. Risk reduction was achieved to the extent that within-district diversification potential was internalized. However, there is no evidence that mergers led to improved risk management.

Keywords: Farm Credit System, mergers, economies of scope and scale

Introduction

The farm debt crisis of the 1980's played havoc with the financial health of many institutions providing credit to agriculture. Elsewhere in this issue, losses sustained by various lenders on their farm loan portfolios are documented. Among the largest losses to any lender were those sustained by the federally chartered, cooperative Farm Credit System (FCS, or the System). Net chargeoffs at the FCS accumulated to a total of \$3.771 billion from 1982 through yearend 1989. These losses represented unprecedented distress for the FCS and caused many to question the economic viability of a system designed to serve one sector of the economy exclusively. The costs of its maintenance to taxpayers were also questioned.

The FCS is a network of cooperative lenders chartered in stages by the Federal Government to provide credit to production agriculture. Until the System was reorganized under the Agricultural Credit Act of 1987 (P.L. 100-233), Federal Land Banks (FLB's) through their related Federal Land Bank Associations (FLBA's) made real estate loans, secured by first mortgages, to finance

the purchase of land, land improvements, rural housing, and farm-related businesses. Federal Intermediate Credit Banks (FICB's) and Production Credit Associations (PCA's) made production and intermediate-term loans for qualified agricultural purposes. There were also 13 Banks for Cooperatives providing credit specifically to agricultural cooperatives.

The financial crisis precipitated a number of changes in the FCS. Among the changes was a restructuring of System institutions, designed to weed out inefficiencies that arise from rapid, unmanaged growth. Such inefficiencies include poor cost control, ineffective asset management, and the existence of institutions too small to capture economies of scale or so large that diseconomies of scale emerge. Mergers within the FCS were mandated or encouraged under the 1987 act and have been associated with the improving financial performance of System entities.

The 1987 act mandated that the existing FICB's and FLB's merge into consolidated Farm Credit Banks (FCB's) in each of the 12 farm credit districts. In addition, the associations were encouraged to merge voluntarily. These mergers could be with like associations or with complementary associations serving substantially the same geographical area. In other words, Production Credit Associations (PCA's) could merge with each other to form larger PCA's or with

Federal Land Bank Associations (FLBA's) to form Agricultural Credit Associations (ACA's). The act also encouraged mergers among the Banks for Cooperatives, but these mergers will not be examined here.

Even before the consolidations mandated by the 1987 act, many mergers and consolidations were taking place among associations within districts. In 1980, there were 491 FLBA's and 424 PCA's. By the end of 1987, after 2 years of unprecedented financial pressure, these numbers had been reduced to 231 FLBA's and 159 PCA's. Within 2 years after passage of the act, the numbers of FLBA's and PCA's fell to 147 and 95 by the end of 1989. In addition, Farm Credit Banks had been formed in 11 of the 12 districts (no merger took place in the Jackson District because the Jackson FLB was placed in receivership). Horizontal mergers of PCA's with FLBA's created 39 Agricultural Credit Associations.

Using quarterly accounting data provided by the System, this article tracks particular aspects of the financial performance of FLB's, FICB's, and their constituent associations during the height of the financial crisis and its aftermath as the associations were consolidating and the banks were being transformed into Farm Credit Banks.

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Potential Impact of Merger

The economic justification for mergers is twofold: to capture cost savings and to reduce risk. Cost savings arise from economies of scale and/or scope. Economies of scale refer to unit cost savings from more productive use of specialized labor or capital or from the spread of fixed costs over increased levels of output. Economies of scope suggest joint usage of fixed resources. In the financial services industry, inputs that might foster economies of scale or scope include specialized labor, computer and telecommunications technology, and information gathering (1).

Thus, the argument goes, larger institutions can more fully and productively employ specialized labor than can smaller institutions. Computer and telecommunications technology, for example, carry large initial costs, but involve low costs per transaction once in place, and increasing the number of transactions leads to further reductions in per-unit costs. Similarly, gathering documentation for lending decisions is a costly activity for financial institutions. The broader the scope of financial services the institution can provide once the information has been collected, the lower the information costs will be per transaction.

The other economic justification for mergers--risk reduction--arises from diversification if returns to the merging entities are less than perfectly correlated. Imperfect correlation of returns means that low profits from one entity would be offset by higher profits from another. When returns are not well correlated, a merged entity will experience lower fluctuations in returns than either entity does separately. In the case of the FCS, risk reduction also arises from the pooling of capital of the merged institutions, circumventing legal obstacles to capital sharing that arose during the farm financial crisis. However, risk reduction benefits will not be significant if returns to the merging institutions are highly correlated or if the component institutions have neither surplus capital nor ability to raise sufficient capital to meet regulatory standards.

Measuring Merger Effects

The goal of this research effort is to use standard financial analysis techniques to assess the impact of FCS mergers on financial performance, observing operations at the district level. To achieve this goal, measures are developed to evaluate the potential impact of mergers on operating performance. Ratios reflecting the increased efficiency expected from merger activity can be divided into three categories. Increases in efficiency could lead to:

- a decline in the share of total assets devoted to overhead assets (primarily premises and equipment and deferred expenses),
- a decline in the ratio of noninterest expenses to output as measured by total assets, and/or
- a decline in the ratio of noninterest expenses to gross operating income.

Statistical tests determine the importance of any differences in these ratios among pre- and post-merger institutions. A standard test for the difference in means between pre- and post-merger data is used to determine if ratios improved, on average, after mergers occurred. In addition, a similar test exists for determining whether there is any significant time trend in these ratios. A negative time trend would indicate ongoing cost reductions had significant impact on efficiency, separate from the district bank level mergers. Such cost reductions could be generated, for ex-

ample, through consolidations at the association level.

Evidence of risk-reducing effects from merger activity is measured through the variance of the realized rate of return on assets and by measuring pre-merger non-diversifiable risk in relation to post-merger risk. One possible effect of mergers could be to reduce variability by diversifying the portfolios of banks and associations. Total variability can be decomposed into two components: diversifiable and nondiversifiable variability.

These two components can be measured by comparing the asset-weighted sum of the variability of returns to the individual pre-merger institutions, with the variability of returns to the combined pre-merger institutions (also asset-weighted) at the district level. The percent of total variability that can be eliminated by combining institutions is a measure of the gain from diversification. In addition, a statistical test is performed to determine if variance of the rate of return on assets (ROA) decreased after merger compared with the variance of ROA of the combined pre-merger institutions. If post-merger institutions achieve the risk level of the combined pre-merger institutions, then risk reduction from internalization of diversification has been achieved. If post-merger institutions reduce risk beyond this level, then some synergy in risk management has been achieved.

Specific efficiency ratios and risk measures used in this study are presented in table B-1.

Table B-1--Efficiency ratios and risk measures

Ratios of expenses to assets

Noninterest expense to total assets
Salaries and benefits to total assets
Occupancy and equipment expense to total assets

Ratios measuring asset composition

Overhead assets to total assets

Ratios measuring effective use of assets in generating revenue

Noninterest expense to total operating revenue
Salaries and benefits to total operating revenue
Occupancy and equipment expense to total operating revenue

Risk measures

Variance of return on assets
Percent of diversifiable standard deviation of pre-merger institutions

The Data

The data used in this article are from three related series of quarterly financial statements. These series consist of combining, i.e., aggregated, statements of operations and of condition for (1) FLB's combined with their constituent FLBA's from second-quarter 1986 through second-quarter 1988, (2) FICB's combined with their constituent PCA's for the same period, and (3) FCB's, created through mergers of FLB's and FICB's, combined with all their constituent associations (including FLBA's, PCA's, and ACA's) from third-quarter 1988 through fourth-quarter 1989. These data were published quarterly by the Farm Credit Corporation of America (FCCA) through the third quarter of 1989 and continue to be published by the Federal Farm Credit Banks Funding Corporation (FFCBFC) in its quarterly "Summary Report of Condition and Performance of the FCS."

As in any such study, the available data dictate the depth and reliability of the analysis. The aggregated categories in which the data are published, such as "salary and benefits," "miscellaneous expenses," "miscellaneous income," "other operating expenses," etc., limit detailed analysis of operating efficiency or asset management. Further, it should be noted that accounting data are, at best, simply a reflection of actual performance and inherently backward looking (as opposed to forward looking market value data that are generally not available since an active market in stock of FCS institutions has not yet developed). Finally, the period of analysis is short, and front-end costs associated with merger activity may still be reflected in the data, masking some actual cost savings.

Accounting conventions and practices have the potential to distort as well as illuminate actual financial performance. The intent here is to concentrate on operating results and thus diminish distortions from extraordinary transactions and from transactions that rely heavily on management judgement. Extraordinary transactions include such items as interbank transfers, sales of buildings, and repurchase of high-cost debt. The primary item subject to management judgment is the provision for losses. Since both loan loss provisions

and actual net chargeoffs behave erratically and rely heavily on uncertain future expectations, past surprises, and regulatory pressures, these factors are not included in measuring operating income. Only operating results before loss provisions are considered here.

Miscellaneous items, not identifiable in the publicly available data as directly related to normal operating activity, are excluded from income and expense figures as well because of their erratic behavior over the period and across districts. In some quarters and in some districts, miscellaneous items included assistance to and from the System, one-time losses on repurchase of debt, loss on investment in Financial Assistance Corporation stock, and other extraordinary transactions. Since miscellaneous expenses are almost universally greater than miscellaneous income, the result of this deletion will be to inflate operating results slightly.

Finally, the comparison of pre- and post-merger institutions requires combining pre-merger FLB and FICB data to make it comparable to post-merger data. To do so, accounting entries for individual FLB's/FLBA's are added to those for the FICB's/PCA's with which they merged.

Results: Cost Savings

These results indicate that the post-merger institutions were unable immediately to reduce operating costs per dollar of assets--a major goal of the mergers. On the contrary, these costs apparently increased, in some cases significantly, in the wake of the mergers.

In no district did any of the expense-to-asset ratios decline (improve) after the FCB mergers. Expenses for personnel and buildings and equipment per dollar of assets managed increased, despite merger activity.

In the Columbia, Texas and Sacramento/Western districts these ratios increased (deteriorated) by a statistically significant amount. The test for time trends indicates that these ratios were experiencing a statistically significant increase (deterioration) over time in many districts. The ratio of noninterest expense to total assets increased (deteriorated) over time in the Baltimore,

Louisville, St. Louis, Wichita, Sacramento/Western, Spokane, and Jackson districts to a statistically significant extent. The ratio of salary and benefits to total assets showed similar increases (deterioration) in the same districts except for Sacramento/Western, while the Baltimore, St. Louis, Wichita, and Jackson districts experienced statistically significant increases (deterioration) in the ratio of occupancy and equipment expense to total assets over time.

As with these expense-to-asset ratios, there is little evidence that the mergers produced desired effects in reducing per-unit overhead assets. Although the mean ratio of overhead assets (premises and equipment and other nonloan-related assets and deferred charges) to total assets decreased (improved) in 9 of the 12 districts, in no district was the improvement statistically significant. In the Texas district, there was a statistically significant increase (deterioration), and in the Spokane district a statistically significant negative (improving) time trend.

Comparing expense-to-revenue ratios indicates no support for the hypothesis that mergers produced any near-term improvements in financial performance. Post-merger improvements (decreases) did occur in the average ratio of salary and benefits to gross operating income in seven districts. Similar improvements occurred in eight districts in the average ratio of occupancy and equipment expense to gross operating income, but no changes were statistically significant. The only statistically significant time trends were observed in the Louisville district, where both ratios increased (deteriorated) over time.

Quarterly averages of the efficiency ratios for pre- and post-merger institutions by district are presented in table B-2. Test results for differences in averages and time trends appear in the footnotes. These statistical tests indicate that none of these ratios improved subsequent to the mergers of the third quarter of 1988. On the contrary, statistically significant deteriorations were experienced in many districts. Only one ratio in one district (overhead assets to total assets in Spokane) displayed a negative (improving), statistically significant time trend. Thus, the goal of cutting costs

Table 8-2--Quarterly average efficiency ratios for combined Farm Credit System pre-merger and post-merger institutions, by district 1/

Item	District							
	Spring- field	Balt- imore	Colum- bia	Louis- ville	St. Louis	St. Paul	Omaha	Wichita
							Texas	Sacra- mento/ Western
								Spokane
								Jack- son
Percent								
Noninterest expense to total assets								
Pre-merger Institutions	0.41	0.27	0.24	0.31	0.27	0.26	0.25	0.25
Post-merger Institutions	0.51	0.34	0.34 2/	0.42 3/	0.40 3/	0.32	0.31	0.24 5/6/
Salaries and benefits expense to total assets								
Pre-merger Institutions	0.34	0.22	0.20	0.27	0.23	0.22	0.22	0.22
Post-merger Institutions	0.42	0.28	0.28 2/	0.36 3/	0.34 4/	0.26	0.26	0.20 6/
Occupancy and equipment expense to total assets								
Pre-merger Institutions	0.06	0.04	0.03	0.05	0.04	0.04	0.04	0.03
Post-merger Institutions	0.09	0.05	0.06 5/6/	0.07	0.06 5/	0.06	0.05	0.04
Overhead assets to total assets								
Pre-merger Institutions	1.96	1.26	1.33	1.69	1.15	1.54	1.21	1.08
Post-merger Institutions	1.67	1.29	1.15	1.10	1.08	1.53	1.00	0.99
Occupancy and equipment expense to gross operating income								
Pre-merger Institutions	11.71	9.80	8.83	NMF	7/	NMF	NMF	22.83
Post-merger Institutions	10.83	10.24	11.67	10.22 3/	9.27	20.73	8.59	10.80
Salaries and benefits expense to gross operating income								
Pre-merger Institutions	63.29	52.57	53.34	NMF	154.68	NMF	NMF	92.70
Post-merger Institutions	49.52	48.75	47.20	41.17 4/	50.29	80.87	42.36	38.52

1/ Data for pre-merger institutions are from second-quarter 1986 through second-quarter 1988. Data for post-merger institutions are from third-quarter 1988 through fourth-quarter 1989. Two-tailed t-tests with 12 degrees of freedom were used to test the difference between reported average quarterly statistics and trends over time. An increase (decrease) in these ratios indicates performance worsened (improved). All significant differences in mean ratios are associated with worsening performance as are all significant time trends. 2/ Time trend significant at the 5-percent level. 3/ Time trend significant at the 2-percent level. 4/ Time trend significant at the 1-percent level. 5/ Time trend significant at the 10-percent level. 6/ Difference in means significant at the 10-percent level. 7/ No Meaningful Figure (NMF) because gross operating revenue was negative in one or more quarters.

Source: Calculated from Summary Reports of Condition and Performance of the FCS, Farm Credit Council of America, and Federal Farm Credit Banks Funding Corporation.

through merger activities has not yet been achieved.

Results: Risk Reduction

The degree of within-district diversifiable risk that existed in the pre-merger context was determined by comparing the following:

- the asset-weighted sum of the variances of the rate of return on assets of the individual institutions within each district, with
- the variance of the rate of return of the combined pre-merger institutions (also asset-weighted) in each district.

These statistics will differ because rates of returns to FICB's/PCA's are not perfectly correlated with rates of return to FLB's/FLBA's. The difference between these statistics is a measure of how much risk can be reduced through within-district diversification. The potential for risk reduction through merger differed considerably among districts from a high of almost 50 percent in the Wichita district to a low of 3.5 percent in the Spokane district. With the exception of Spokane, there was considerable potential for within-district risk reduction through diversification that merger could bring about.

To determine whether merged institutions captured this potential risk reduction, a test was performed for the difference in variance of the rate of return on assets (ROA) between combined pre-merger and post-merger institutions. Results revealed a mix of increases and decreases in risk at the district level. Only in Spokane, however, did a statis-

tically significant decrease occur. The results support the hypothesis that the mergers resulted in risk reduction through within-district diversification, but with the exception of the Spokane district, not in reducing risk through improved management. Statistics on potential risk reduction are presented in table B-3, and statistics on testing for differences in variances of ROA's before and after the mergers are presented in table B-4.

Summary and Conclusions

The results indicate that the mergers of FICB's and FLB's into FCB's, and mergers at the association level, had negligible effect on System financial performance after six quarters. There is no evidence from the accounting data that the anticipated cost savings from these mergers materialized. Individual institutions did reduce risk through the internalization of diversification possibilities but did not realize decreases in risk through better overall risk management. Since joint and several liability for System-wide bonds existed prior to the mergers, the main effect of within-district diversification is to reduce expected bankruptcy and other transaction costs related to financial distress. It is documented elsewhere that progress was made in improving profits (2). However, there is no evidence that this improvement is directly related to merger activity.

Changes in structure, regulation, and economic environment may not be fully reflected in the short-run data used here. There are good reasons why economies of scale or scope may fail to be realized after a merger, especially in the short run. For one, differences in the sizes of pre- and post-merger institutions may not be sufficient for these economies to

be evident. In addition, they may already be realized through pre-merger structure or cooperation, especially in a system with the level of shared components and shared management as the FCS. There may also be short-run obstacles to the realization of cost savings including incompatibility of management philosophy and operating principles, existing investment in incompatible management information system technologies, and expenses for severance benefits related to reductions in work force. Any of these factors may help explain the results presented in this article.

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Table B-3--Farm Credit System pre-merger potential gains from diversification, by district 1/

Item	District											
	Spring- field	Balt- imore	Colum- bia	Louis- ville	St. Louis	St. Paul	Omaha	Wichita	Texas	Sacra- mento/ Western	Spokane	Jack- son
	Percent											
a) Std. dev. of ROA for combined Institutions	0.09	0.11	0.07	0.25	0.10	0.13	0.23	0.08	0.06	0.12	0.10	0.13
b) Sum of std. deviations of ROA for uncombined institutions	0.09	0.13	0.08	0.28	0.12	0.14	0.25	0.11	0.06	0.07	0.10	0.14
c) Potential percent risk reduction from mergers [(b-a)/b]	9.79	16.56	17.77	22.29	30.83	16.82	16.37	47.25	11.78	24.39	3.50	13.65

1/ Data for pre-merger institutions is from second-quarter 1986 through second-quarter 1988.

Source: Calculated from Summary Reports of Condition and Performance of the FCS, Farm Credit Council of America, and Federal Farm Credit Banks Funding Corporation.

Table B-4--Differences in variances of return on assets between Farm Credit System combined pre-merger and post-merger institutions, by district

	District											
	Spring- field	Balt- imore	Colum- bia	Louis- ville	St. Louis	St. Paul	Omaha	Wichita	Texas	Sacra- mento/ Western	Spokane	Jack- son
Pre-merger Institutions	0.09	0.11	0.07	0.25	0.10	0.13	0.23	0.08	0.06	0.12	0.10	0.13
	0.16	0.08	0.12	0.12	0.09	0.13	0.14	0.04	0.04	0.05	0.03 1/	0.82 2/

1/ F-test for decrease in variance is significant at the 10-percent level with 13 and 4 degrees of freedom. 2/ F-test for increase in variance is significant at the 1-percent level with 4 and 13 degrees of freedom.

Source: Calculated from Summary Reports of Condition and Performance of the FCS, Farm Credit Council of America, and Federal Farm Credit Banks Funding Corporation.

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Appendix table 1--Total farm debt, excluding households, December 31

Year	Debt owed to reporting institutions					Individuals and others 1/	Total debt
	Farm Credit System	Commercial banks	Farmers Home Adm.	Life insurance companies	Total		
Million dollars							
1974	21,711	22,547	3,818	5,799	53,875	21,978	75,853
1975	25,222	24,672	4,604	6,198	60,696	24,316	85,012
1976	29,008	28,077	4,963	6,828	68,876	27,191	96,067
1977	32,994	31,289	6,377	8,150	78,810	32,047	110,857
1978	37,566	34,435	8,832	9,698	90,531	36,871	127,402
1979	45,376	37,125	14,442	11,278	108,221	43,329	151,550
1980	52,958	37,746	17,460	11,991	120,155	46,624	166,779
1981	61,523	38,788	20,792	12,136	133,239	49,037	182,276
1982	64,524	41,948	21,338	11,898	139,708	49,793	189,501
1983	64,418	45,569	21,573	11,834	143,394	49,301	192,695
1984	62,998	46,864	22,913	11,514	144,289	45,582	189,871
1985	54,665	44,062	24,192	10,908	133,827	40,123	173,950
1986	44,861	41,259	23,870	10,098	120,088	34,156	154,244
1987	39,131	40,715	23,294	9,105	112,245	29,706	141,951
1988	36,485	42,375	21,666	8,824	109,350	28,225	137,575
1989	35,604	44,461	18,827	8,872	107,764	27,845	135,609
1990P	36,651	46,399	14,769	8,689	106,508	27,413	133,921
Percent change in year							
1974	22.8	7.0	9.6	5.8	12.9	10.3	12.2
1975	16.2	9.4	20.6	6.9	12.7	10.6	12.1
1976	15.0	13.8	7.8	10.2	13.5	11.8	13.0
1977	13.7	11.4	28.5	19.4	14.4	17.9	15.4
1978	13.9	10.1	38.5	19.0	14.9	15.1	14.9
1979	20.8	7.8	63.5	16.3	19.5	17.5	19.0
1980	16.7	1.7	20.9	6.3	11.0	7.6	10.0
1981	16.2	2.8	19.1	1.2	10.9	5.2	9.3
1982	4.9	8.1	2.6	-2.0	4.9	1.5	4.0
1983	-0.2	8.6	1.1	-0.5	2.6	-1.0	1.7
1984	-2.2	2.8	6.2	-2.7	0.6	-7.5	-1.5
1985	-13.2	-6.0	5.6	-5.3	-7.3	-12.0	-8.4
1986	-17.9	-6.4	-1.3	-7.4	-10.3	-14.9	-11.3
1987	-12.8	-1.3	-2.4	-9.8	-6.5	-13.0	-8.0
1988	-6.8	4.1	-7.0	-3.1	-2.6	-5.0	-3.1
1989	-2.4	4.9	-13.1	0.5	-1.5	-1.3	-1.4
1990P	2.9	4.4	-21.6	-2.1	-1.2	-1.6	-1.2
Percentage distribution of debt							
1974	28.6	29.7	5.0	7.6	71.0	29.0	100.0
1975	29.7	29.0	5.4	7.3	71.4	28.6	100.0
1976	30.2	29.2	5.2	7.1	71.7	28.3	100.0
1977	29.8	28.2	5.8	7.4	71.1	28.9	100.0
1978	29.5	27.0	6.9	7.6	71.1	28.9	100.0
1979	29.9	24.5	9.5	7.4	71.4	28.6	100.0
1980	31.8	22.6	10.5	7.2	72.0	28.0	100.0
1981	33.8	21.3	11.4	6.7	73.1	26.9	100.0
1982	34.0	22.1	11.3	6.3	73.7	26.3	100.0
1983	33.4	23.6	11.2	6.1	74.4	25.6	100.0
1984	33.2	24.7	12.1	6.1	76.0	24.0	100.0
1985	31.4	25.3	13.9	6.3	76.9	23.1	100.0
1986	29.1	26.7	15.5	6.5	77.9	22.1	100.0
1987	27.6	28.7	16.4	6.4	79.1	20.9	100.0
1988	26.5	30.8	15.7	6.4	79.5	20.5	100.0
1989	26.3	32.8	13.9	6.5	79.5	20.5	100.0
1990P	27.4	34.6	11.0	6.5	79.5	20.5	100.0

P = Preliminary. 1/ Includes individuals and others (land for contract, merchants and dealers credit, etc.) and CCC storage and drying facilities loans.

Appendix table 2--Real estate farm debt, excluding households, December 31

Year	Debt owed to reporting institutions					Individuals and others	CCC	Total real estate
	Farm Credit System	Farmers Home Adm.	Life insurance companies	Commercial banks	Total		storage and drying facilities	
Million dollars								
1974	12,187	2,899	5,799	5,312	26,197	14,363	217	40,777
1975	14,533	3,044	6,198	5,621	29,396	15,764	170	45,330
1976	16,881	3,311	6,828	6,075	33,095	17,258	144	50,497
1977	19,640	3,613	8,150	6,994	38,397	19,556	492	58,445
1978	22,686	3,746	9,698	7,717	43,847	21,712	1,148	66,707
1979	27,322	6,254	11,278	7,798	52,652	25,660	1,391	79,703
1980	33,208	7,431	11,991	7,760	60,390	27,801	1,456	89,647
1981	40,254	8,086	12,136	7,573	68,049	29,291	1,342	98,682
1982	43,966	8,361	11,898	7,626	71,851	29,527	1,127	102,505
1983	45,026	8,718	11,834	8,494	74,072	29,847	888	104,807
1984	44,906	9,173	11,514	9,245	74,838	27,319	623	102,780
1985	40,663	9,478	10,908	10,324	71,373	24,746	307	96,426
1986	34,544	9,445	10,098	11,581	65,668	21,890	123	87,681
1987	29,747	9,171	9,105	13,126	61,149	18,744	46	79,939
1988	27,719	8,767	8,824	14,066	59,376	16,444	21	75,841
1989	26,114	7,984	8,872	15,211	58,188	15,583	12	73,783
1990P	26,571	6,409	8,689	15,999	57,668	14,666	7	72,341
Percent change in year								
1974	23.7	6.9	5.8	9.7	14.5	11.2	-21.9	13.0
1975	19.3	5.0	6.9	5.8	12.2	9.8	-21.7	11.2
1976	16.2	8.8	10.2	8.1	12.6	9.5	-15.3	11.4
1977	16.3	9.1	19.4	15.1	16.0	13.3	241.7	15.7
1978	15.5	3.7	19.0	10.3	14.2	11.0	133.3	14.1
1979	20.4	67.0	16.3	1.0	20.1	18.2	21.2	19.5
1980	21.5	18.8	6.3	-0.5	14.7	8.3	4.7	12.5
1981	21.2	8.8	1.2	-2.4	12.7	5.4	-7.8	10.1
1982	9.2	3.4	-2.0	0.7	5.6	0.8	-16.0	3.9
1983	2.4	4.3	-0.5	11.4	3.1	1.1	-21.2	2.2
1984	-0.3	5.2	-2.7	8.8	1.0	-8.5	-29.8	-1.9
1985	-9.4	3.3	-5.3	11.7	-4.6	-9.4	-50.7	-6.2
1986	-15.0	-0.3	-7.4	12.2	-8.0	-11.5	-59.9	-9.1
1987	-13.9	-2.9	-9.8	13.3	-6.9	-14.4	-62.6	-8.8
1988	-6.8	-4.4	-3.1	7.2	-2.9	-12.3	-54.3	-5.1
1989	-5.8	-8.9	0.5	8.2	-2.0	-5.2	-42.9	-2.7
1990P	1.8	-19.7	-2.1	5.1	-0.9	-5.9	-41.7	-2.0
Percentage distribution of debt								
1974	29.9	7.1	14.2	13.0	64.2	35.2	0.5	100.0
1975	32.1	6.7	13.7	12.4	64.8	34.8	0.4	100.0
1976	33.4	6.6	13.5	12.0	65.5	34.2	0.3	100.0
1977	33.6	6.2	13.9	12.0	65.7	33.5	0.8	100.0
1978	34.0	5.6	14.5	11.6	65.7	32.5	1.7	100.0
1979	34.3	7.8	14.2	9.8	66.1	32.2	1.7	100.0
1980	37.0	8.3	13.4	8.7	67.4	31.0	1.6	100.0
1981	40.8	8.2	12.3	7.7	69.0	29.7	1.4	100.0
1982	42.9	8.2	11.6	7.4	70.1	28.8	1.1	100.0
1983	43.0	8.3	11.3	8.1	70.7	28.5	0.8	100.0
1984	43.7	8.9	11.2	9.0	72.8	26.6	0.6	100.0
1985	42.2	9.8	11.3	10.7	74.0	25.7	0.3	100.0
1986	39.4	10.8	11.5	13.2	74.9	25.0	0.1	100.0
1987	37.2	11.5	11.4	16.4	76.5	23.4	0.1	100.0
1988	36.5	11.6	11.6	18.5	78.3	21.7	0.0	100.0
1989	35.4	10.8	12.0	20.6	78.9	21.1	0.0	100.0
1990P	36.7	8.9	12.0	22.1	79.7	20.3	0.0	100.0

P = Preliminary.

Appendix table 3--Nonreal estate farm debt, excluding households, December 31

Year	Debt owed to reporting institutions				Individuals and others	Total nonreal estate	CCC crop loans
	Commercial banks	Farm Credit System	Farmers Home Adm.	Total			
Million dollars							
1974	17,235	9,524	919	27,678	7,398	35,076	304
1975	19,051	10,689	1,560	31,300	8,382	39,682	232
1976	22,002	12,127	1,652	35,781	9,789	45,570	936
1977	24,295	13,354	2,764	40,413	11,999	52,412	4,146
1978	26,718	14,880	3,086	46,684	14,011	60,695	4,646
1979	29,327	18,054	8,188	55,569	16,278	71,847	3,714
1980	29,986	19,750	10,029	59,765	17,367	77,132	3,836
1981	31,215	21,269	12,706	65,190	18,404	83,594	6,888
1982	34,322	20,558	12,977	67,857	19,139	86,996	15,204
1983	37,075	19,392	12,855	69,322	18,566	87,888	10,576
1984	37,619	18,092	13,740	69,451	17,640	87,091	8,428
1985	33,738	14,002	14,714	62,454	15,070	77,524	17,598
1986	29,678	10,317	14,425	54,420	12,143	66,563	19,190
1987	27,589	9,384	14,123	51,096	10,916	62,012	15,120
1988	28,309	8,766	12,899	49,974	11,760	61,734	8,902
1989	29,243	9,490	10,843	49,576	12,250	61,826	4,769
1990P	30,400	10,080	8,360	48,840	12,740	61,580	7,000
Percent change in year							
1974	6.2	21.6	19.0	11.5	10.0	11.2	-55.7
1975	10.5	12.2	69.7	13.1	13.3	13.1	-23.7
1976	15.5	13.5	5.9	14.3	16.8	14.8	303.4
1977	10.4	10.1	67.3	12.9	22.6	15.0	342.9
1978	10.0	11.4	84.0	15.5	16.8	15.8	12.1
1979	9.8	21.3	61.0	19.0	16.2	18.4	-20.1
1980	2.2	9.4	22.5	7.6	6.7	7.4	3.3
1981	4.1	7.7	26.7	9.1	6.0	8.4	79.6
1982	10.0	-3.3	2.1	4.1	4.0	4.1	120.7
1983	8.0	-5.7	-0.9	2.2	-3.0	1.0	-30.4
1984	1.5	-6.7	6.9	0.2	-5.0	-0.9	-20.3
1985	-10.3	-22.6	7.1	-10.1	-14.6	-11.0	108.8
1986	-12.0	-26.3	-2.0	-12.9	-19.4	-14.1	9.0
1987	-7.0	-9.0	-2.1	-6.1	-10.1	-6.8	-21.2
1988	2.6	-6.6	-8.7	-2.2	7.7	-0.4	-41.1
1989	3.3	8.3	-15.9	-0.8	4.2	0.1	-46.4
1990P	4.0	6.2	-22.9	-1.5	4.0	-0.4	46.8
Percentage distribution of debt							
1974	49.1	27.2	2.6	78.9	21.1	100.0	
1975	48.0	26.9	3.9	78.9	21.1	100.0	
1976	48.3	26.6	3.6	78.5	21.5	100.0	
1977	46.4	25.5	5.3	77.1	22.9	100.0	
1978	44.0	24.5	8.4	76.9	23.1	100.0	
1979	40.8	25.1	11.4	77.3	22.7	100.0	
1980	38.9	25.6	13.0	77.5	22.5	100.0	
1981	37.3	25.4	15.2	78.0	22.0	100.0	
1982	39.5	23.6	14.9	78.0	22.0	100.0	
1983	42.2	22.1	14.6	78.9	21.1	100.0	
1984	43.2	20.8	15.8	79.7	20.3	100.0	
1985	43.5	18.1	19.0	80.6	19.4	100.0	
1986	44.6	15.5	21.7	81.8	18.2	100.0	
1987	44.5	15.1	22.8	82.4	17.6	100.0	
1988	45.9	14.2	20.9	81.0	19.0	100.0	
1989	47.3	15.3	17.5	80.2	19.8	100.0	
1990P	49.4	16.4	13.6	79.3	20.7	100.0	

P = Preliminary.

Appendix table 4--Selected agricultural interest rates on nonreal estate loans, 1960-90 1/

Nonreal estate								
Year	Commercial banks 2/			Farm Credit System 3/	FmHA 5/		Average on farm nonreal estate 6/	Average on total farm debt 6/
	All banks	Large banks	Other banks		Regular	Limited resource		
Percent								
1960	6.80	NA	NA	7.25	5.00	NA	6.12	5.58
1965	6.70	NA	NA	6.58	5.00	NA	5.97	5.65
1970	8.32	NA	NA	9.45	6.88	NA	7.45	6.58
1975	9.03	NA	NA	9.11	8.63	NA	7.83	7.39
1980	15.20	16.20	15.00	12.74	11.00	6.82	11.11	9.58
1981	18.50	19.80	18.10	14.46	14.04	8.13	12.66	10.69
1982	16.70	16.10	17.00	14.58	13.73	10.75	12.61	11.01
1983	13.50	12.10	14.10	11.95	10.31	7.31	11.51	10.50
1984	14.10	13.10	14.40	12.47	10.25	7.25	11.25	10.31
I	13.50	12.20	14.10	12.05	10.25	7.25	NA	NA
II	14.20	13.30	14.50	12.10	10.25	7.25	NA	NA
III	14.80	14.40	14.90	12.61	10.25	7.25	NA	NA
IV	14.20	13.40	14.40	13.10	10.25	7.25	NA	NA
1985	12.80	11.20	13.40	12.40	10.25	7.25	10.13	9.55
I	13.21	1.70	13.80	12.91	10.25	7.25	NA	NA
II	13.00	11.50	13.60	12.50	10.25	7.25	NA	NA
III	12.30	10.60	12.90	12.16	10.25	7.25	NA	NA
IV	12.30	10.60	13.10	12.03	10.25	7.25	NA	NA
1986	11.50	9.60	12.10	11.22	8.66	5.66	10.18	9.56
I	12.00	10.30	12.80	11.40	10.25	7.25	NA	NA
II	11.50	9.70	12.00	11.25	8.71	5.71	NA	NA
III	11.40	9.30	12.10	11.25	8.00	5.00	NA	NA
IV	10.80	8.90	11.50	11.00	7.67	4.67	NA	NA
1987	10.60	9.20	11.30	10.20	8.12	5.27	10.67	9.73
I	10.10	8.40	11.20	10.10	7.50	4.50	NA	NA
II	10.70	9.40	11.20	10.00	7.50	4.50	NA	NA
III	10.40	9.30	11.10	10.00	8.75	5.57	NA	NA
IV	11.00	9.60	11.60	10.30	8.75	6.33	NA	NA
1988	11.20	10.20	11.60	10.56	9.02	6.02	11.74	10.50
I	11.00	9.70	11.60	10.48	9.00	6.00	NA	NA
II	10.70	9.70	11.30	10.51	8.67	5.67	NA	NA
III	11.50	10.70	11.80	10.43	9.00	6.00	NA	NA
IV	11.60	11.10	11.80	10.82	9.42	6.42	NA	NA
1989	12.50	12.10	12.70	11.73 4/	9.10	6.10	10.95	10.06
I	12.33	12.10	12.40	11.63	9.40	6.40	NA	NA
II	12.90	12.80	13.00	12.11	9.50	6.50	NA	NA
III	12.50	12.00	12.80	11.55	9.00	6.00	NA	NA
IV	12.10	11.60	12.50	11.41	9.42	5.50	NA	NA
1990	11.50	10.95	12.28	11.16 4/	8.81	5.81	10.48	9.95
I	11.80	11.20	12.30	11.20	8.50	5.50	NA	NA
II	11.80	11.40	12.30	11.20	8.50	5.50	NA	NA
III	10.90	10.20	12.30	11.14	9.25	6.25	NA	NA
IV	11.50	11.00	12.50	11.10	9.00	6.00	NA	NA

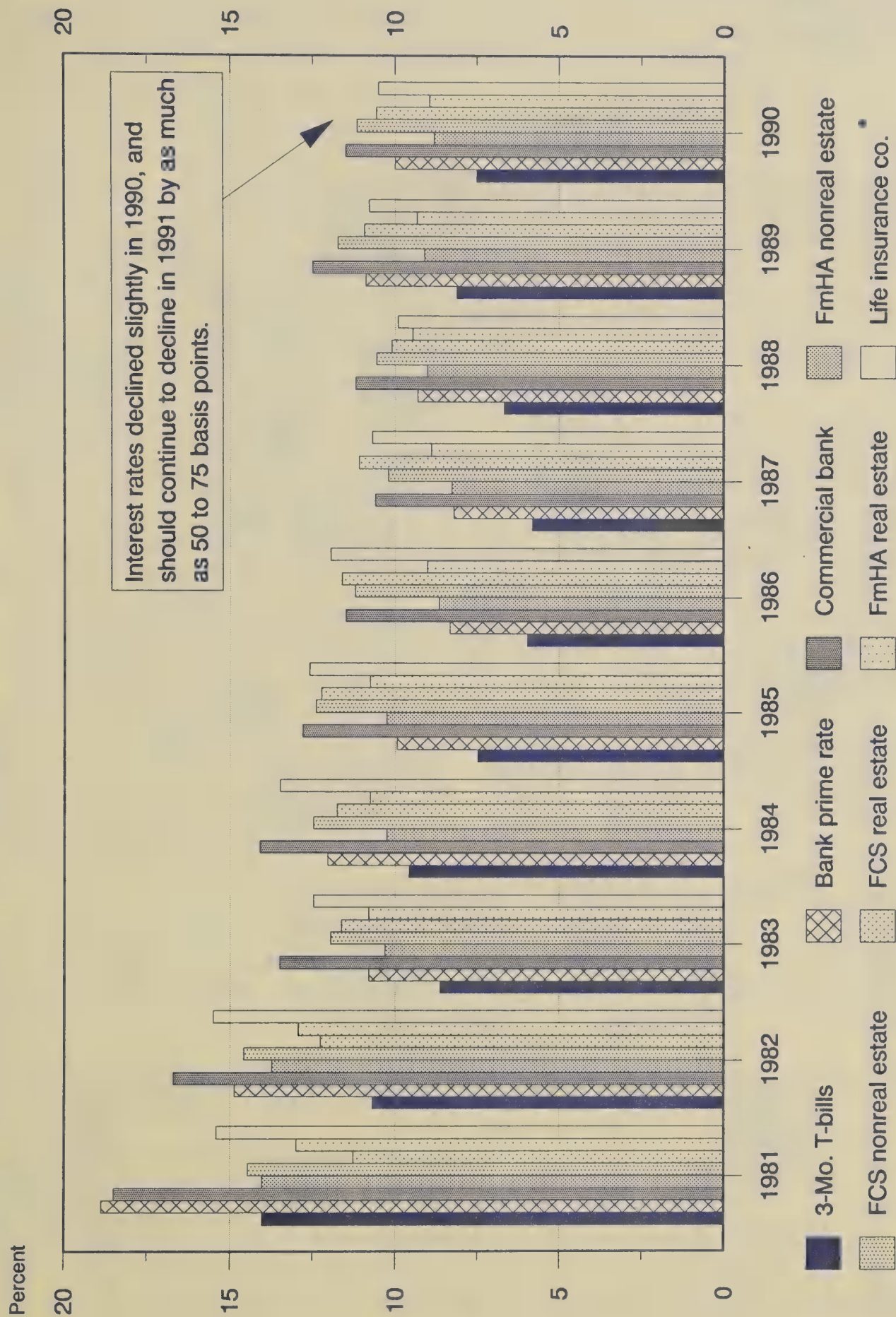
NA= Not available. 1/ For historical data see Agricultural Finance Statistics, USDA, ERS, 1960-83. 2/ Source: Federal Reserve Board and Agricultural Finance Databook, June 1987, Board of Governors of the Federal Reserve System, Emanuel Melichar. 3/ Source: Farm Credit Administration. 4/ Estimate based on average of 8 FCS district banks. 5/ Average for new FmHA loans, rates are weighted by length of time various rates were in effect during the quarter. 6/ Computed from data in Economic Indicators of the Farm Sector, 1986, USDA, ERS. Average interest rate on outstanding debt, excludes farm operator household interest and debt.

Appendix table 5--Selected agricultural interest rates on real estate loans, 1960-90 1/

Year	Prime Rate charged by banks 2/	3-month Treasury bills 2/	Real Estate				Average on farm real estate loans 8/
			Farm Credit System 3/	Life insurance companies 5/	FmHA 7/		
					Regular	Limited resource	
1960	4.82	2.95	6.00	5.00	5.00	NA	5.00
1965	4.54	3.95	5.60	5.50	5.00	NA	5.35
1970	7.91	6.44	8.68	9.31	5.00	NA	5.88
1975	7.86	5.82	8.69	10.03	5.00	NA	6.98
1980	15.27	11.61	10.39	13.21	11.05	4.82	8.17
1981	18.87	14.07	11.27	15.42	13.00	5.50	8.92
1982	14.86	10.72	12.27	15.51	12.94	6.50	9.58
1983	10.79	8.62	11.63	12.47	10.79	5.27	9.6
1984	12.04	9.57	11.76	13.49	10.75	5.25	9.48
I	11.07	9.13	11.50	13.04	10.75	5.25	NA
II	12.31	9.84	11.62	13.56	10.75	5.25	NA
III	12.99	10.34	11.79	13.71	10.75	5.25	NA
IV	11.80	8.97	12.14	13.65	10.75	5.25	NA
1985	9.93	7.49	12.24	12.60	10.75	5.25	9.06
I	10.54	8.18	12.24	12.88	10.75	5.25	NA
II	10.20	7.52	12.40	12.73	10.75	5.25	NA
III	9.50	7.10	12.40	12.50	10.75	5.25	NA
IV	9.50	7.15	12.40	12.34	10.75	5.25	NA
1986	8.33	5.97	11.61	11.95	9.13	5.06	9.05
I	9.37	6.89	11.90	12.78	10.75	5.25	NA
II	8.61	6.13	11.50	12.04	9.25	5.00	NA
III	7.85	5.53	11.10	11.80	8.25	5.00	NA
IV	7.50	5.34	11.95	11.20	8.25	5.00	NA
1987	8.22	5.82	11.10	10.21	8.90	5.00	8.96
I	7.50	5.53	11.40	9.48	8.25	5.00	NA
II	8.05	5.73	10.90	9.97	8.25	5.00	NA
III	8.40	6.03	10.75	10.50	9.25	5.00	NA
IV	8.92	6.11	11.50	10.88	9.83	5.00	NA
1988	9.32	6.69	10.10	10.32	9.46	5.00	9.46
I	8.60	5.76	9.88	10.13	9.50	5.00	NA
II	8.75	6.23	9.82	9.90	9.17	5.00	NA
III	9.67	6.99	10.06	10.08	9.50	5.00	NA
IV	10.17	7.69	10.56	10.07	9.67	5.00	NA
1989	10.88	8.12	10.93 4/	10.78	9.46	5.00	9.36
I	11.00	8.53	10.82	10.71	9.50	5.00	NA
II	11.42	8.44	11.01	10.54	9.17	5.00	NA
III	10.58	7.85	10.62	10.23	9.50	5.00	NA
IV	10.50	7.64	10.65	10.40	9.67	5.00	NA
1990	10.00	7.51	10.56 4/	10.50 6/	8.94	5.00	9.52
I	10.00	7.60	10.62	NA	8.75	5.00	NA
II	10.00	7.70	10.67	NA	8.75	5.00	NA
III	10.00	7.49	10.49	NA	9.25	5.00	NA
IV	10.00	7.02	10.45	NA	8.75	5.00	NA

NA= Not available. 1/ For historical data see Agricultural Finance Statistics, USDA, ERS, 1960-83. 2/ Source: ERS Darts Data System. 3/ Source: Farm Credit Administration. 4/ Estimate based on average of 8 FCS district banks. 5/ Estimated by ERS from data obtained in a quarterly life insurance survey. 6/ Estimate based on 1990 average cost of funds from, American Council of Life Insurance, Investment Bulletin. 7/ Average for new FmHA loans, rates are weighted by length of time various rates were in effect during the quarter. 8/ Computed from data in Economic Indicators of the Farm Sector, USDA, ERS. Average interest rate on outstanding debt, excludes farm operator household interest and debt.

Appendix figure 1--Selected Agricultural Interest Rates, 1981-90



* 1990 figure based on estimate of Life Insurance Company cost of funds.

Appendix figure 2--Farm Credit System Districts*

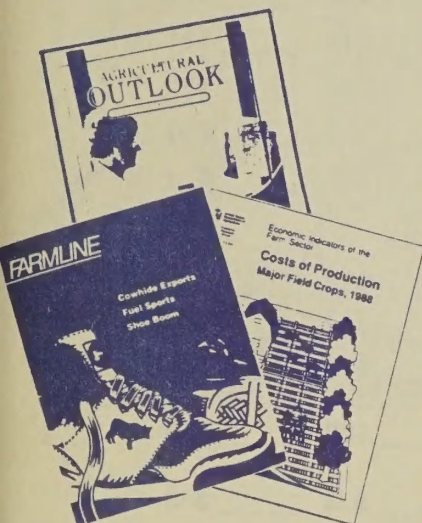


* Long-term lending for the Jackson district is administered through the Texas district. As of December 1990, several PCA's in New Mexico have regulatory authorization to change their affiliation from the Wichita district to the Texas district.

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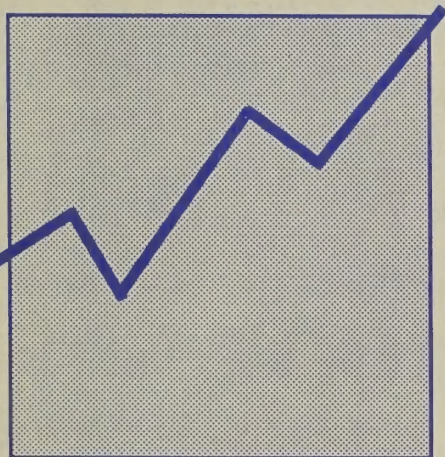
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